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HOW TO MAKE GREAT PICTURES

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HERE FIRST! **LAB & FIELD TEST REPORT**

THE AMAZING NIKON D4

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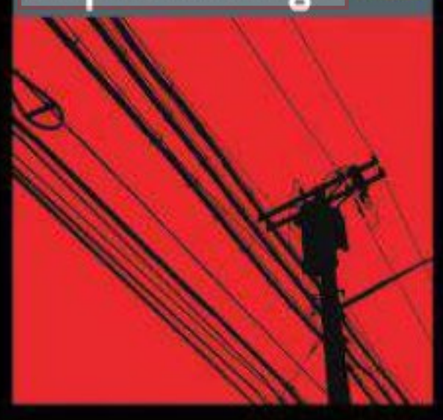
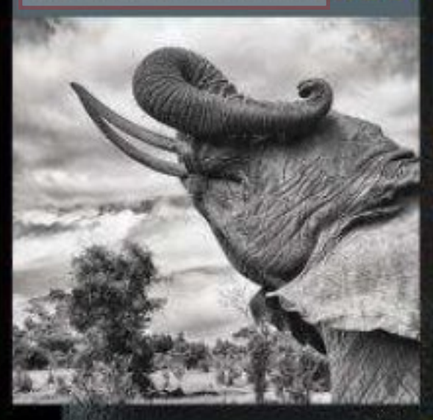
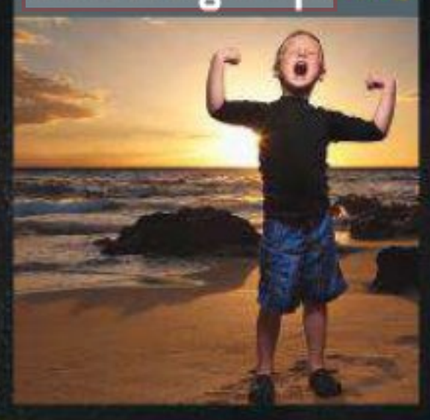

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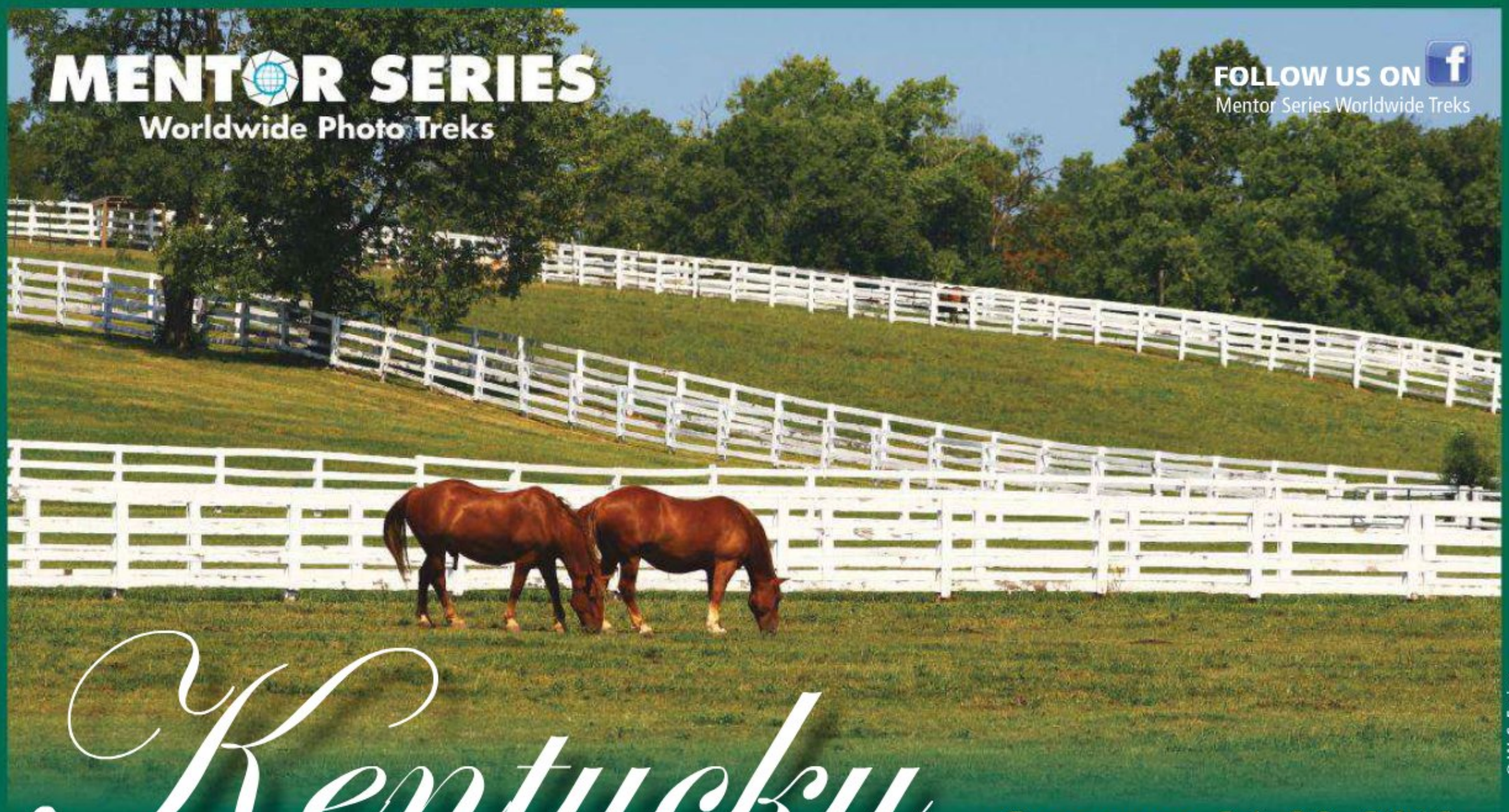

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Kentucky

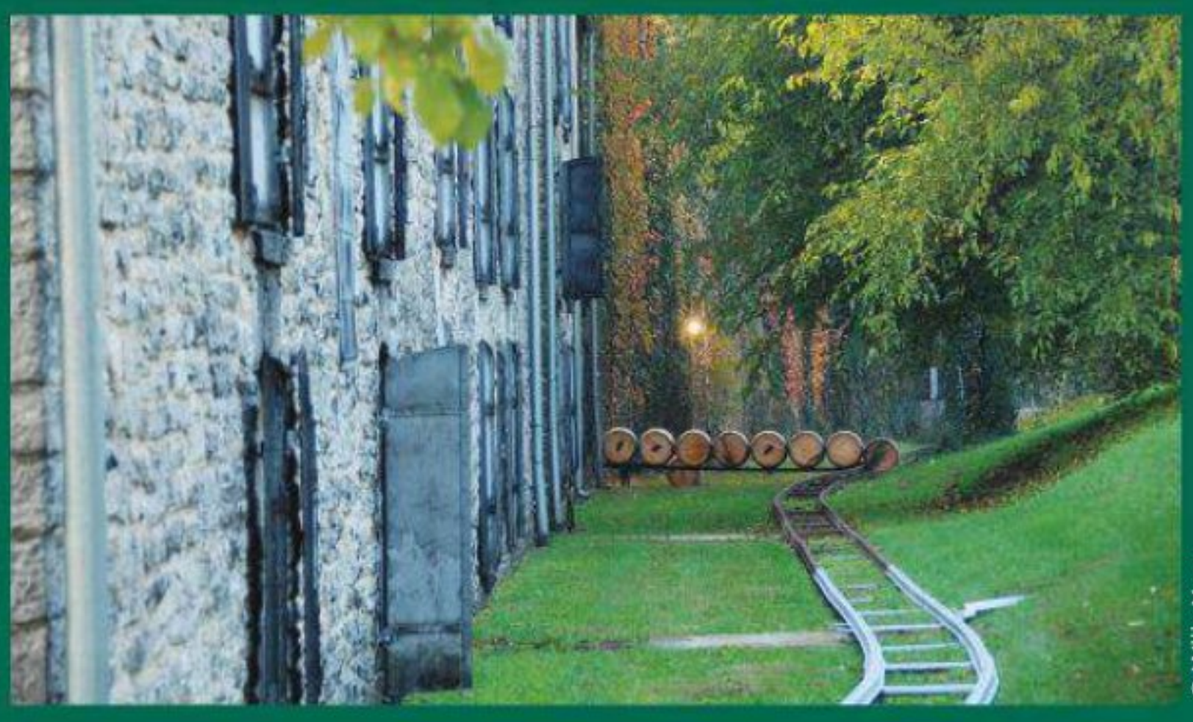
October 26–28, 2012

Pack your camera gear and travel with the Mentor Series to Lexington, Kentucky, to discover the endless photo opportunities that the "horse capital of the world" in autumn has to offer. With Nikon professional photographers Dave Black and Daniel J. Cox by your side, you will learn the skills needed to admirably capture the rolling bluegrass hills, the varied equine community, and the stunning scenic beauty this part of the country boasts.

Prepare to step into the past and tell the whole story visually when we head to Keeneland Race Track, one of the most genteel and elegant tracks in the world. You will witness, in no time, the overall atmosphere and "days gone by" feel of the course as the equestrians await your lens. With trackside access, your mentor's best advice, and a grounds pass, you will have all the tools you need to capture the many elements at the very essence of the horse racing culture. Slow down your shutter speed and follow the action to demonstrate, through panning and motion blur, the speed of the horses and the bright colors of the jockeys as they zip by; or shoot faster and show the mud spray and body language of the racers frozen in your frame. No doubt you will have plenty of opportunities to practice new techniques, to change your perspective, and to gather the distinguishing details which will fill in your story.

A trek to the birthplace of Kentucky bourbon would not be complete without a visit to a picturesque distillery. Photograph the time-honored distillation process or consider the setting of this stunning historic estate, nestled in the gently rolling hills that comprise the heart of the bluegrass horse country. Before the end of the weekend, a stop at a private horse farm will give us special access to all-things-equine, and a chance to get up-close and personal with some of the most important thoroughbreds to set foot on a racetrack. Time spent in Shaker Village will allow another peek at the past, as it consists of 34 original 19th-century buildings and 2,800 acres of farmland. A collection of original Shaker furniture and household items from the 19th-century, within the restored community, will contribute authenticity to our portraits as we photograph skilled artisans working at 19th-century trades and historic farming bringing the past to life.

Don't let this opportunity with the Mentor Series to hone your photographic skills and experience the "thoroughbred city" through your lens pass you by. Sign up today!



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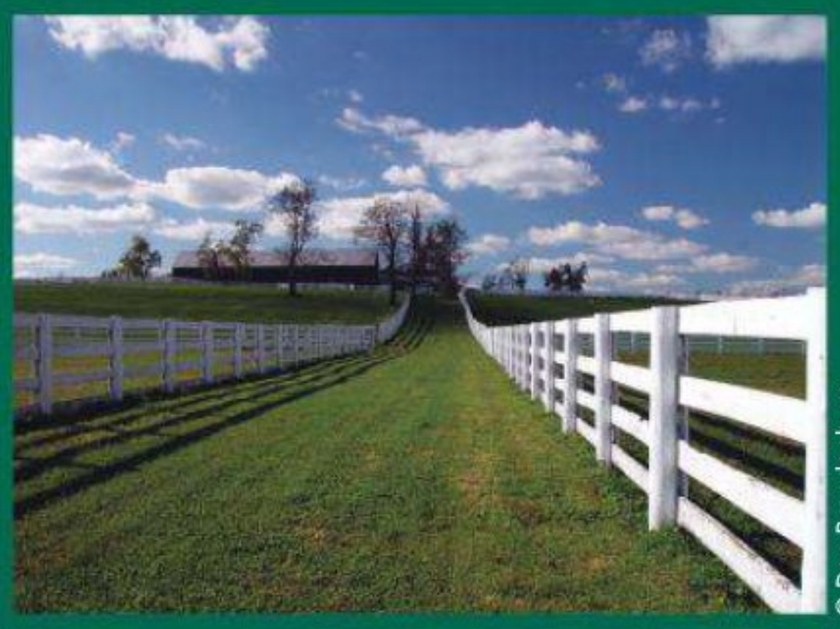

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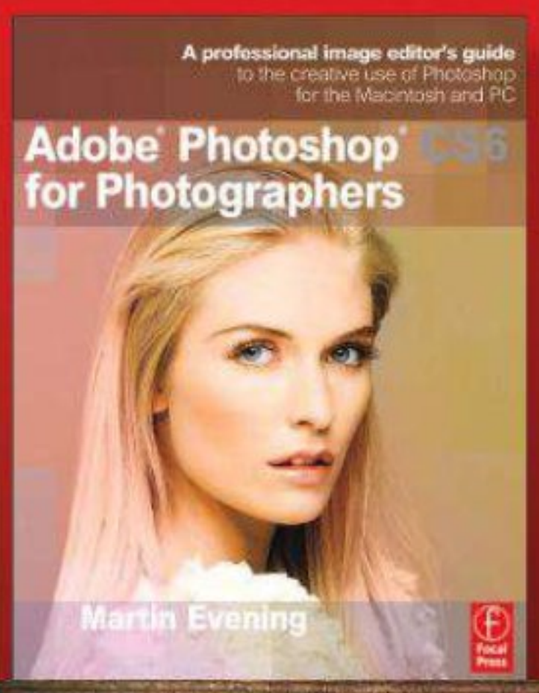

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By Martin Evening

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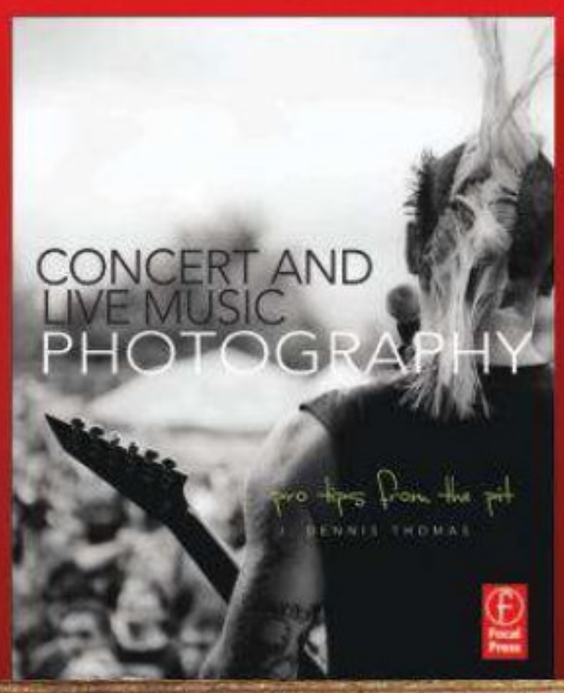

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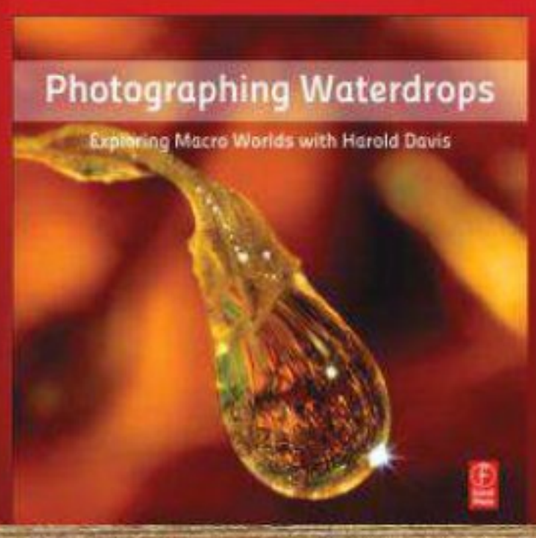

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By Harold Davis

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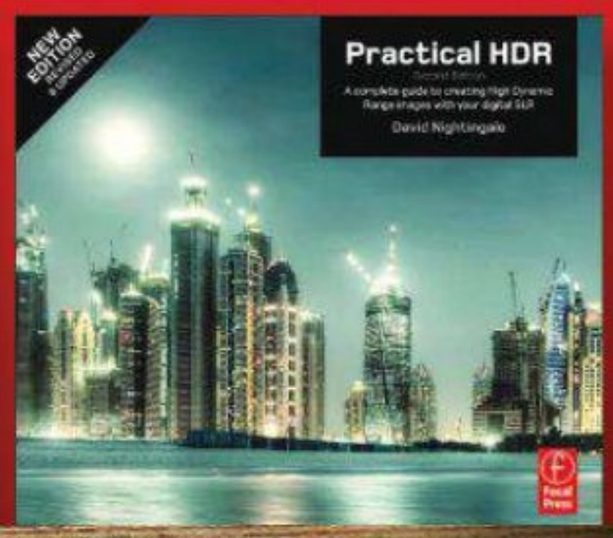

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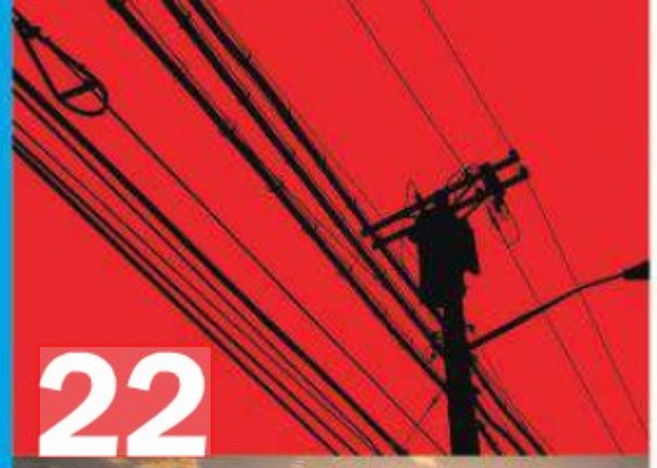

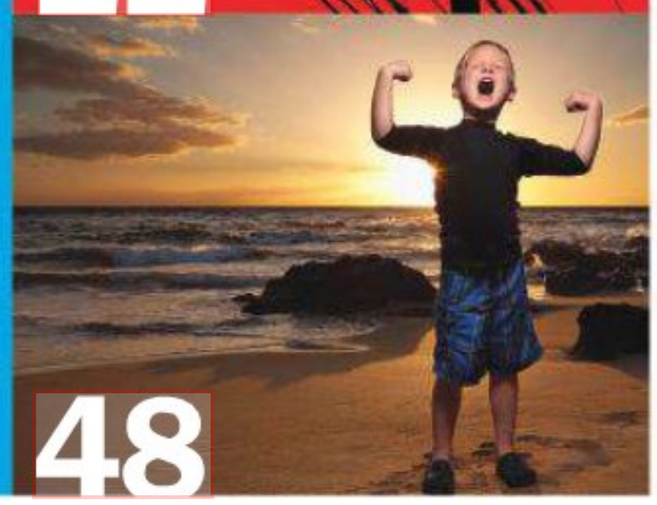

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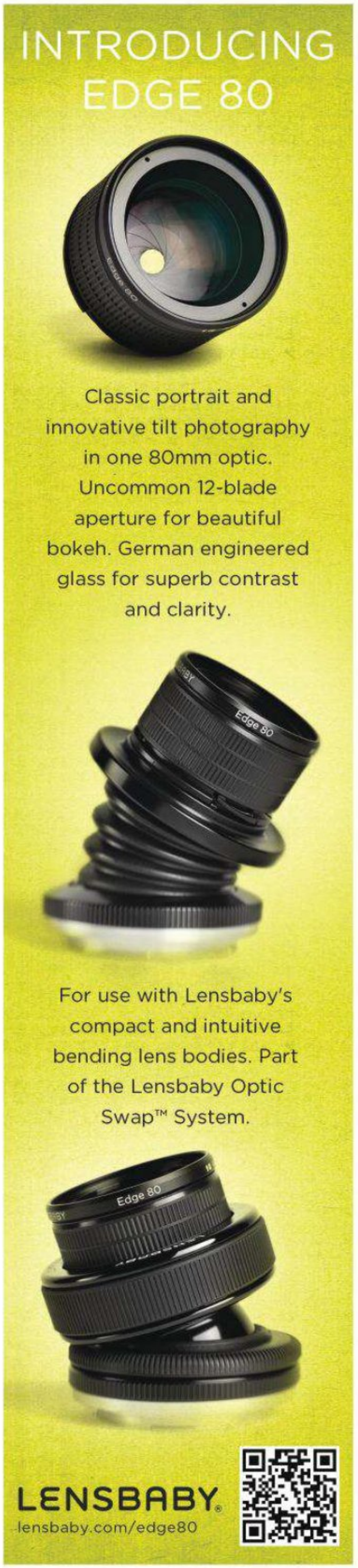
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Behind the Lens Test

This month marks a milestone for the Popular Photography Test Lab. For the first time since interchangeable-lens compact cameras debuted, we have been able to perform our full panoply of tests—specifically our SQF tests for sharpness and contrast—on a lens for an ILC. Until now, we have been able to run only distortion, light falloff, and image stabilization tests (using DxO dot targets and software), as well as close focusing and maximum magnification.

But the true heart of our lens testing program is SQF, which stands for Subjective Quality Factor. Despite its name, this provides a rigorously objective measure of optical performance; "subjective" refers to relative image sharpness at each standard aperture at different reproduction sizes. Developed in the 1970s by Edward M. Granger, a senior scientist at Eastman Kodak and professor at the Rochester Institute of Technology, SQF represents a weighted average of the edge-to-edge light-gathering performance of a lens (the center being weighted more heavily). It clearly and authoritatively denotes the level of image quality you will get from a particular lens—regardless of the camera. And we are the only photographic publication that tests it.

To measure SQF, we mount the lens on our optical bench, built with Granger's help. A device called a collimator bounces a narrow beam through a series of small mirrors to mimic sunlight and align the light (technically, to collimate it) for infinity focus. The beam passes through a very fine crosshair—the exact size depends on the focal length—to the lens. This is attached to an arm that swings out, capturing the beam across the full diameter of the glass. A sensor gathers the images from the lens and sends them to a computer running custom software that generates the SQF charts you see each month in our magazine. The whole shebang is bolted to a massive steel table (it literally weighs a ton) attached to an air compressor that floats the top and compensates for vibration, from the gentle sway of our office building to the subway rumbling underneath.

For this all to work, we must be able to not just mount the lens on the optical bench, but to focus to infinity and set the aperture to each full stop. No big deal with a manual lens, but an electronically controlled lens requires a custom-built device or modified camera body to work properly.

Samsung is the first ILC maker to make a mount plate and reprogram one of its cameras for us. (You'll find this test report, on the 18–55mm f/3.5–5.6 OIS II for the Samsung NX system, on page 86.) We hope to soon have similar devices for Fujifilm XF, Micro Four Thirds (Olympus and Panasonic), Nikon CX, and Sony E mounts to let us run SQF tests on ILC lenses from these manufacturers—and third-party lens makers, too.

Miriam Leuchter

NEWSSTAND Nikon's new D4 wowed us with its speed, sensitivity, and video capabilities. But is it right for you? Read our full test report on page 73. Photo by Satoshi.

SUBSCRIBER Wedding photographer Ira Lippke brought the newlyweds to an aspen grove for this romantic shot. He and other top pros share their insights on page 66.

POPULAR PHOTOGRAPHY

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PHILIP RYAN

BLOOMING WITH COLORS

Technical Editor Philip Ryan does not have a backyard garden in his New York apartment building, but thanks to some green-thumbed neighbors, he was able to capture this tulip in bloom in a nearby flower bed. He shot with a Nikon D4 set to ISO 6400 at 1/160 sec, and a Sigma 180mm f/3.5 EX APO macro lens stopped down to f/5.6. He mounted the rig on a Manfrotto tripod equipped with a macro focusing rail. For our lab and field test of the Nikon D4, see page 73.

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NEXT

THE HOTTEST NEW STUFF AND THE TECHNOLOGY TRENDS BEHIND IT

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POWERFUL ULTRABOOKS FOR THE ROAD

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NIKON'S NEW 24.2MP ENTRY-LEVEL DSLR

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WE WANT THIS

SCENE STEALER

An ILC with friendly features for new shooters

THE LITTLE Lumix GF5 joins its predecessor, the GF3, in Panasonic's line of Micro Four Thirds interchangeable-lens compacts, bringing with it a few sweet updates. Most notable? A redesigned user interface that is clearer and easier to use, allowing for quicker access to scene and shooting modes.

A higher-resolution (920,000-dot) 3-inch, touchscreen display lets you focus or fire the shutter. A revamped 12.1-megapixel LiveMOS sensor and Venus processing engine boosts maximum ISO to 12,800. The small camera is easier to hold, too, with an added rubber grip.

For neophytes, a new Scene Guide shows 23 sample photos: Pick one like the scene you're shooting, and the GF5 suggests settings to help you get the shot.

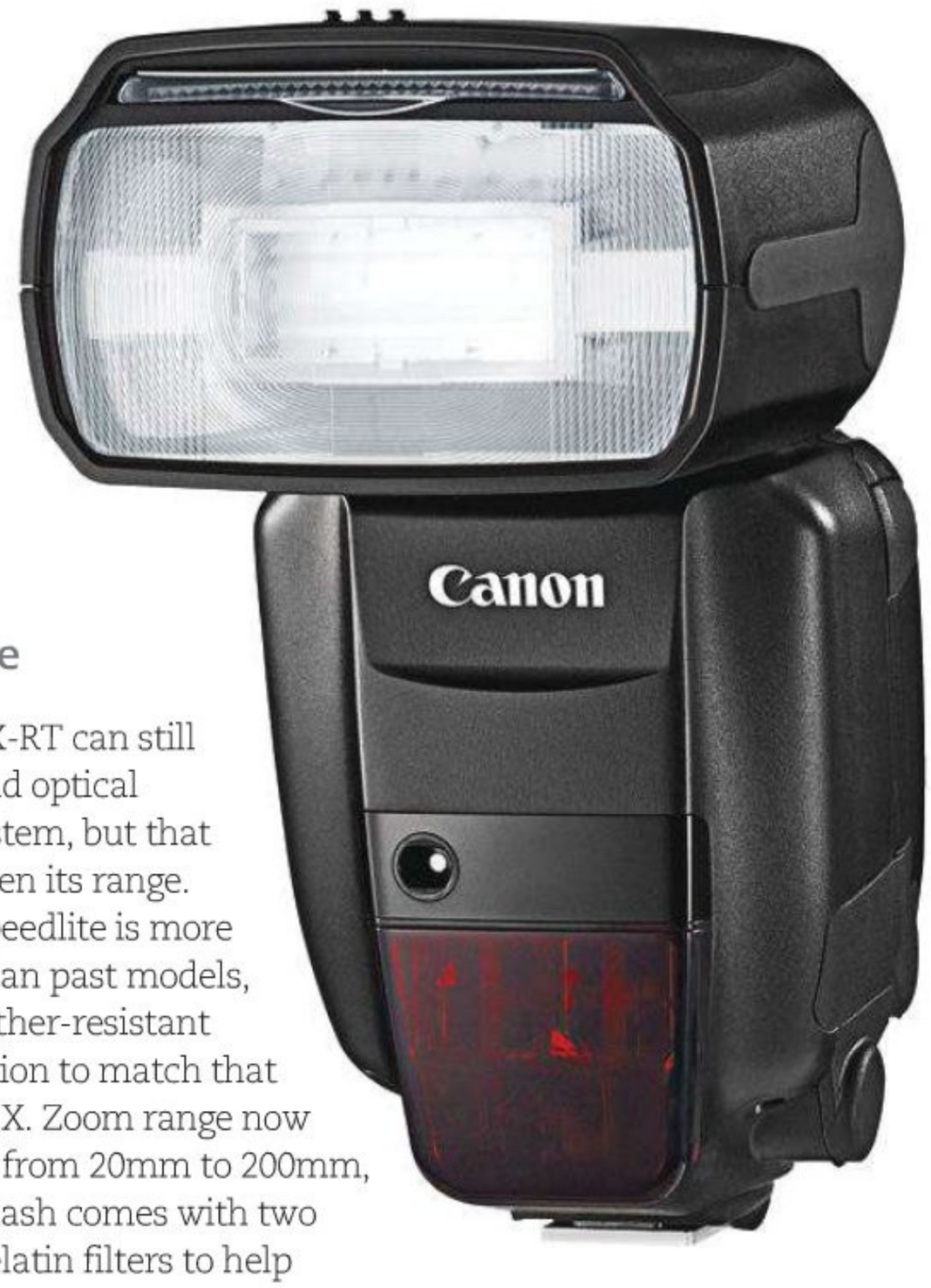
SATOSHI

PANASONIC LUMIX GF5

12.1MP LiveMOS Four Thirds sensor
ISO to 12,800
1920x1080i60 HD video
$749, list, with 14–42mm power zoom lens
panasonic.net

RADIO CONTROL

Canon's new flagship flash can send as well as receive



THE SPEEDLITE 600EX-RT is the first shoe-mount flash with a 2.4GHz radio-based wireless triggering system built in. The radio-based E-TTL lets you control up to 15 other 600EX-RT slave flashes from up to 98.4 feet away. Its new wireless mode, called Group, lets you control up to five groups of flashes, although this works only with Canon's EOS 5D Mark III and 1D X. Of course, the 600EX-RT can still use the old optical E-TTL system, but that will shorten its range.

The new Speedlite can also act as a remote camera trigger, firing up to 15 bodies at the same time.

This Speedlite is more rugged than past models, with weather-resistant construction to match that of the 1D X. Zoom range now stretches from 20mm to 200mm, and the flash comes with two orange gelatin filters to help match ambient light.

If you prefer to control remote flashes without mounting one on the camera, go with Canon's ST-E3-RT wireless transmitter ($319, street), which offers all of the same triggering functions without the flash itself.

Canon Speedlite 600EX-RT
$629, street
usa.canon.com

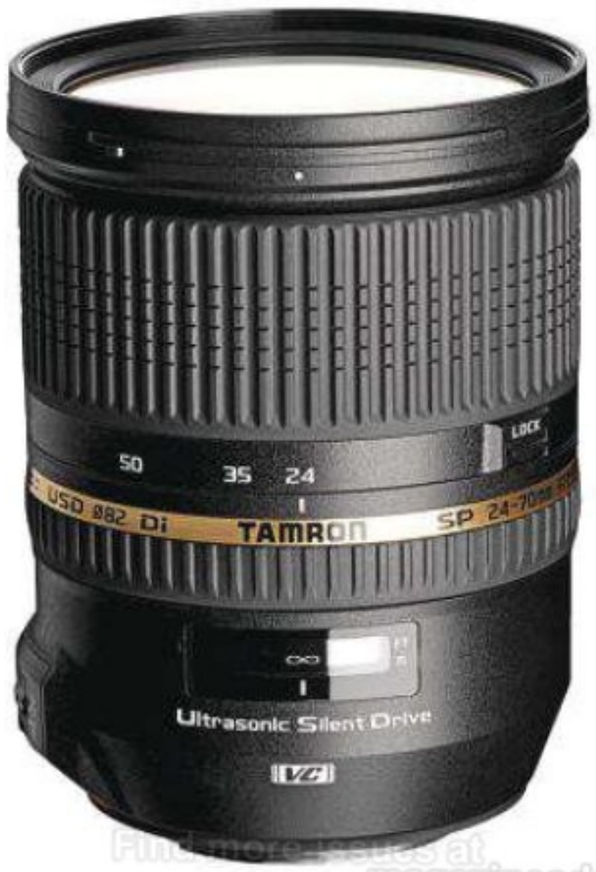
STABLE SURPRISE

The first 24–70mm lens with Vibration Compensation

PHOTOGRAPHERS OFTEN cite a fast 24–70mm zoom as the most useful in their stable of lenses. So you can imagine our excitement when Tamron announced its SP 24–70mm f/2.8 Di VC USD lens, the first image-stabilized lens with this zoom range that's available for full-frame DSLRs.

Inside the barrel are 12 groups with a total of 17 elements. The lens body is moisture-resistant, and it sports a rounded, nine-blade diaphragm. Tamron cites a minimum focusing distance of 15 inches.

The new zoom will be available in Canon, Nikon, and Sony mounts. Look for our full lab and field test soon.



Tamron SP 24–70mm f/2.8 Di VC USD
$1,300, street
www.tamron-usa.com

NEWS FEED

> The Virtual Lighting Studio at zvork.fr/vls is a great tool for trying out imaginary lighting setups and teaching yourself studio techniques. Opt for strobes, beauty dishes, or softboxes, and change the output power of each. A bonus: the bald and blank-faced "model" has infinitely more patience than your friends.

INSIDE TECH

New VC

Tamron's Vibration Compensation system in its new 24–70mm lens is lighter than previous versions. The system uses a moving coil method, with three coils that activate the VC lens group electromagnetically via three ceramic balls. This update has both a lighter coil and a repositioned magnet, making the VC unit more compact, as well.

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NEXT * JUST OUT

PRETTY PRACTICAL

A camera bag in a suprising package

WE COVERED an early bag from Epiphanie when the company first got started—at that time, its camera bag/handbag concept was a new one. Now, despite competitors such like Kelly Moore, Epiphanie continues to grow. One of our favorites is the new Lyric bag, a faux leather (good because it's lighter and less pricey) tote with three padded, adjustable Velcro panels that can hold a DSLR, flash, a couple of lenses, and more. There are three exterior pockets, including one that can accomodate an iPad. Two removable straps let you choose your favorite way to carry it; the cross-body strap has extra padding for comfort. And it certainly would not be a stylish bag without color options: Get it in mustard (shown here), slate blue, plum, or brown.

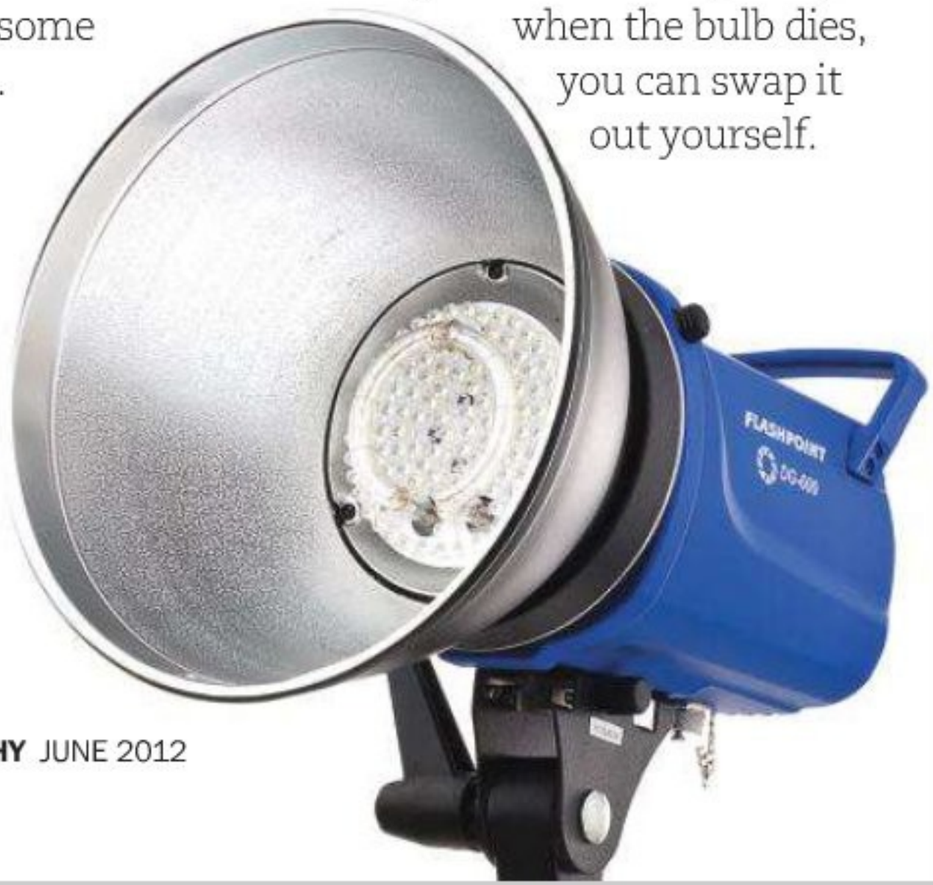
Epiphanie Lyric bag **$155, direct** epiphaniebags.com

MONO LITE

A great basic strobe head for beginners

ADORAMA'S in-house line of photo equipment, Flashpoint, has updated its entry-level monolights. Great for studio-lighting beginners who want to try strobes without a serious commitment of funds, the 300 Ws Flashpoint DG600 Monolight and its sibling, the 200 Ws DG400 light ($45 less), have some higher-level controls. These are the only lights at this price to offer digital output readouts on the back. And they have an interesting modeling light: Instead of the usual bulb, there's an array of LEDs, which won't be much of a drain when using the optional battery pack ($130). What we like best? Unlike first-generation Flashpoints, when the bulb dies, you can swap it out yourself.

Flashpoint DG600 Monolight
$200, direct
www.adorama.com



NEWS FEED

> Got an eye toward the heavens? Canon's new EOS 60Da is a version of the 60D tricked out for astro-photography.

> Case and bag maker Think Tank Photo has four new versions of its beloved slim, flat wallets: one for nine SD cards, one for strobe gels, and two for camera batteries.

> Now Android users can make and share faux-retro photos; Instagram is finally available for devices running version 2.2 and higher.

> New for photographers who fly: The Tenba Roadie II Hybrid case meets carry-on standards and rolls or converts to a backpack.

New Software

iPhoto for iPad

We may not use the desktop version of iPhoto very often for photo editing, but the new iOS edition ($4.99 in the iTunes store) may become our go-to tool for picture-fixing on the iPad and iPhone. It provides a simple way to sort and flag photo images in your library, and direct access to them for tweaking. Post to Facebook, Flickr, or Twitter right from the app, and stream photos to your HDTV. The iPad version is less cramped to use, but both are fun.

THE LOWDOWN

THE 4K FUTURE

By now you're familiar with such video specs as 720p and 1080i, which measure the vertical pixel count of your HD picture. But you'll be hearing more about 4K video, the emerging HD cinema standard that measures about 4,000 pixels horizontally (the vertical count varies by aspect ratio). Canon recently announced two new Cinema DSLRs that can output 4K.

Advertorial

AIM HIGHER
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The professional Nikon D800 is the highest resolution HD-SLR in current production, with an advanced 35.9 x 24mm FX-format CMOS sensor that captures an astonishing 36.3 megapixels and delivers images and Full HD video with unsurpassed detail, sharpness, and color fidelity. Its advanced EXPEED 3 image processor enables blazing data upload speeds, an ultra-wide dynamic range, and superb low-light performance up to ISO 25,600 in High Sensitivity Mode. This brilliant new image capture system is fully integrated with a state-of-the-art Advanced Scene Recognition, 91,000-pixel, RGB Color Matrix III metering system that works in conjunction with Nikon's acclaimed 51-point AF system to provide unsurpassed speed and accuracy in identifying, tracking, exposing, and capturing fast-moving subjects, plus greatly enhanced Face Detection AF, Auto White Balance accuracy, and i-TTL flash performance. It's the kind of camera that makes you wish you could go back in time and shoot everything over!

STATE-OF-THE-ART METERING
91,000-pixel 3D Nikon Color Matrix III meter with Advanced Scene Recognition System delivers unsurpassed exposure accuracy plus enhanced AF, AWB, and i-TTL auto flash performance.

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Cutting-edge feature set provides a true cinematic experience, delivering broadcast quality 1920 x 1080 at 30/25/24 fps or 1280 x 720- at 60/50/30 fps. Multi-area mode Full HD D-Movie, lets shooters use FX or DX-format cropping options in Full HD at 16:9, and high-fidelity sound that's precisely controlled via the 20-step on-screen audio level indicators.

ULTRA-RUGGED CONSTRUCTION
Durable, precision die-cast, environmentally sealed magnesium alloy body incorporates pro-caliber 200,000-cycle shutter, and is perfectly balanced and ergonomically contoured for all-day shooting comfort.

ADVANCED FEATURE SET
Built-in Auto HDR 6 preset Picture Control options, 9 customizable picture settings, high speed CF and SD dual memory card slots, and two-axis Virtual Horizon graphic indicator enhance shooting flexibility, expand creative possibilities.

ULTRA-HIGH-SPEED AF
Super-fast 51-point AF system has 4 Dynamic AF modes, including 3D Focus tracking for identifying, locking onto, and capturing razor sharp images of fast-moving sports and action subjects.

BUILT-IN HDMI TERMINAL
It lets you view footage simultaneously on the LCD and an external monitor while recording, or bypass the CF or SD cards to record uncompressed 8-bit 4.2.2 footage directly to an external recording device.

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PORTABLE Lenovo's IdeaPad U310 is one of the most affordable ultrabooks available.

BRING IT

SHOOTING TETHERED is the preferred method for many pros. But if a standard laptop is too heavy, consider an ultrabook. Light in weight, with fast solid-state drives and sleek looks, they are a compromise with surprising power. Here are five in their base configurations.

Apple MacBook Air $1,299 The mother of all ultrabooks, the 2.96-pound, 13-inch MacBook Air is arguably the model after which the rest are styled. You can upgrade from an Intel Core i5 to an i7 processor. The glossy, LED-backlit screen may annoy some photographers.

Dell XPS 13 Ultrabook $1000 At 12.4 inches wide, it has the smallest footprint of any 13-inch ultrabook, says Dell. The screen is edge-to-edge Gorilla Glass and, with an aluminum top and a carbon-fiber bottom, it's a real looker. Starts with an i5, goes up to i7.

HP Folio 13 $900 HP claims a 9-hour battery life for this i5 ultrabook, making it one of the longest-lasting models you can buy. With a built-in SD slot to go with an HDMI port, you can share your shots right away on your HDTV. But at 3.3 pounds, it's a bit on the heavy side.

Toshiba Portégé Z835 $900 Configured with an i3 processor, this one doesn't have as much processing power as the rest, but it's very light—a little less than 2.5 pounds. The pricier business version, the Z830, comes with 6GB memory and an i7 processor.

Lenovo IdeaPad U310 $750 If you opt for a traditional hard drive, the U310 starts out surprisingly affordable. It ships with the latest i3 processor and is the heaviest of the bunch at nearly 4 pounds. Still, it remains a very reasonable entry into the ultrabook universe.

LORI FREDRICKSON (3)

NEWS FEED

> Designed for scientific research and video production, the Phantom Miro M320S high-speed camera can shoot 1,380 fps at a resolution of 1920x1200. But go down in res to 128x8, and you can stretch a single second out to three hours of video, played back at 30 fps.

> Lensbaby's Composer Pro isn't DSLR-only anymore—it now comes in mounts for most ILC systems. Part of Lensbaby's Optic Swap system, it ships with the 50mm Double Glass or Sweet 35 Optic.

> Satechi's Camera Holder and Suction Cup Mount lets you stick your DSLR to smooth surfaces. It has two hinges to get the angle right, and it rotates 360 degrees.

> Shooters of Fujifilm's FinePix and X-series cameras have a new compact shoe-mounted flash option, the cute little EF-X20.

TOOLBOX

EXTEND IT

How to go macro without using a macro lens

EXTENSION TUBES are money savers for shooters who want to get really close, but who aren't interested in breaking the bank for a macro lens. They work by mounting on the camera between the body and the lens. The extra distance between the lens and the camera's sensor allows you to focus closer.

Kenko's set of 10mm and 16mm DG extension tubes for Micro Four Thirds and Sony's E-mount ILCs (thkphoto.com; $180, estimated street) are electronically coupling, so you can use the camera to set the aperture and—depending on the lens—use autofocus, too.

68.4

The value, in billions of dollars, of the digital photography market last year.

82.5

The projected value, in billions of dollars, of the digital photo market by 2016.

SOURCE: BCC Research

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Nikon D3200

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BIG PICTURE

Nikon's new entry-level DSLR boasts better video and lots and lots of pixels

JUST WHEN YOU thought a truce had been declared in the megapixel wars, out comes a flurry of high-resolution cameras. We were impressed first by the 36.3MP sensor in Nikon's full-frame D800. Now, into a rather petite, entry-level body, Nikon has squeezed a 24.2-megapixel DX format (APS-C-size) sensor.

This huge pixel count may seem surprising, but note the 24.3MP sensors in Sony's Alpha 77 and NEX-7. (Since Sony makes sensors for Nikon, there may well be a similar one in the D3200.)

LORI FREDRICKSON (LCD IMAGE)

The D3200's built-in pop-up flash can be used for i-TTL flash control with a variety of Nikon's SB-series Speed-lights—a nice touch at this level.

Of course, Nikon has done more than just upped the pixels. The new top native ISO is now 6400, expandable to 12,800. Video is 1920x1080p at both 24 and 30 fps. There's full-time autofocus in video mode, manual exposure control while recording, and even a microphone input jack.

The AF system has 11 focus points (one cross-type), and it uses Nikon's scene-recognition system. At top speed, the D3200 can pump out four full-res frames per second—impressive processing for a little camera like this. As with Nikon's other entry-level DSLRs, there's no built-in AF motor. To use AF, you'll need to shoot G-series lenses (which have built-in motors) or go with third-party glass.

In addition, Nikon introduced a cool new accessory to work exclusively with the D3200: the WU-1a wireless adapter, which connects the camera to smartphones and tablets via Wi-Fi. An app, available now for Android and this fall for Apple iOS, can let you upload images to devices for sharing and viewing externally. The app will also let you use your device to activate live view and trigger the camera's shutter for stills.

For now, there's no real competition at this price and these pixel counts, but Canon's entry-level model is due for a refresh soon. In the meantime, we're looking forward to seeing how all those megapixels fare in our test lab and in the field.

Drawing on the beauty of light

Focal length: 70mm Exposure: F/8 1/125 sec ISO100

Tamron SP 24-70mm F/2.8 Di VC USD

(Model A007) new

The world's first F/2.8 full-frame standard zoom lens with image stabilization. Explore the subtle aspects of beauty with Tamron's all new, high-speed standard zoom that gives you top in class optical quality while featuring VC anti-shake mechanism, fast, accurate and quiet USD AF system with full-time manual focus, and rounded 9-blade diaphragm for beautiful bokeh. Di design for use with full-frame DSLR cameras for excellent format versatility.

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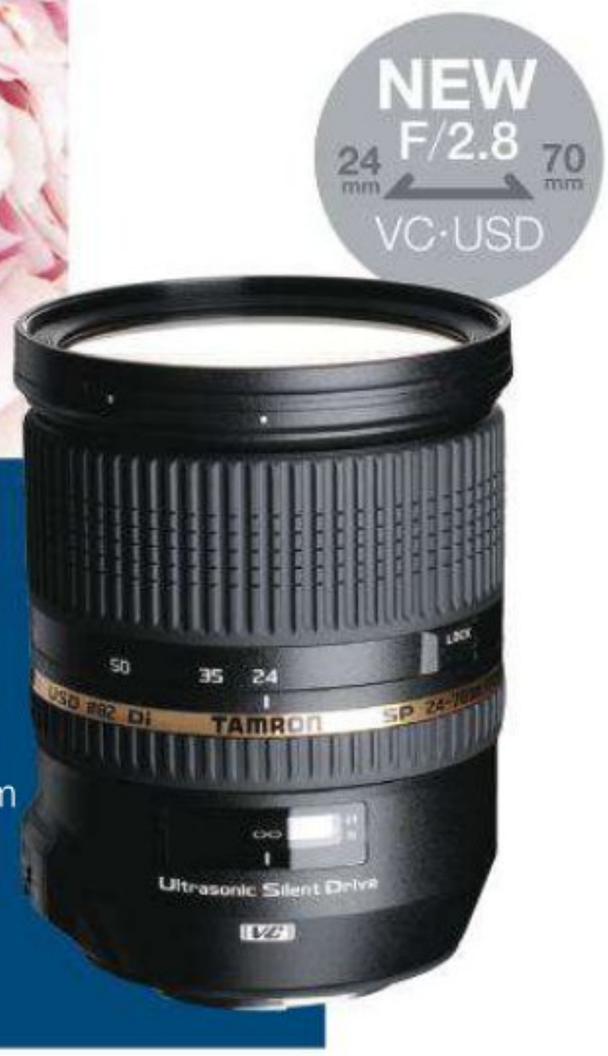

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Cove Point Lighthouse photo © Ferrell McCollough

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PHOTO CHALLENGE

MIDNIGHT SNACK

This spiny orb-weaver spider ignores the lens as it prepares its meal.

MATTHEW SMITH

POPPHOTO.COM

Kitchen sink spider-hunter wins our macro challenge

HAUNTING MATTHEW SMITH from his kitchen window for almost a week, this terrifying orb-weaver spider would taunt the 36-year-old learning specialist night after night from just outside his Greensboro, NC, home. The hairy arachnid would cover the entire pane of glass with his web, gorging on moths in the darkness—only to disappear by morning.

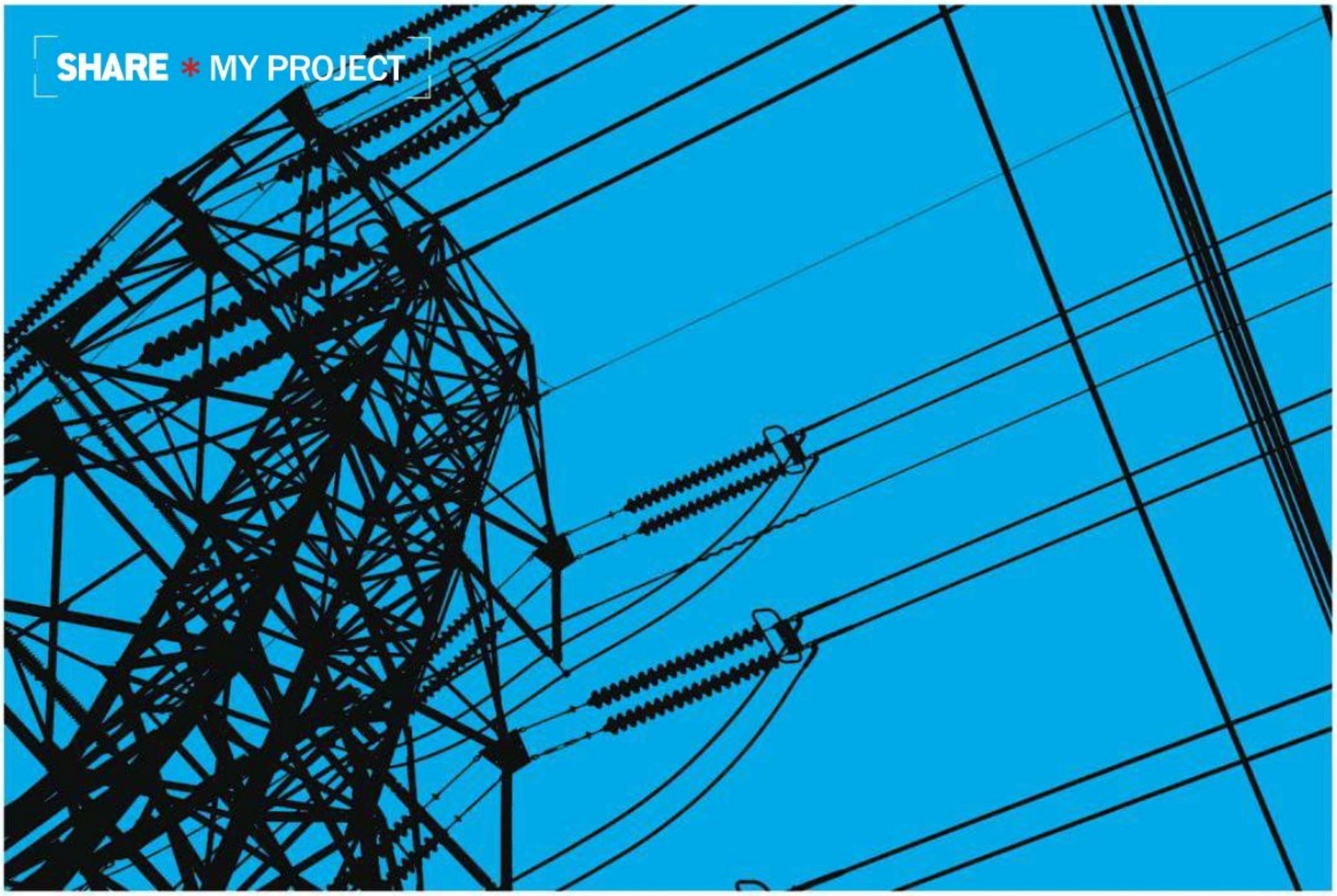
It was not long before Smith decided that the nocturnal beast would have to be shot.

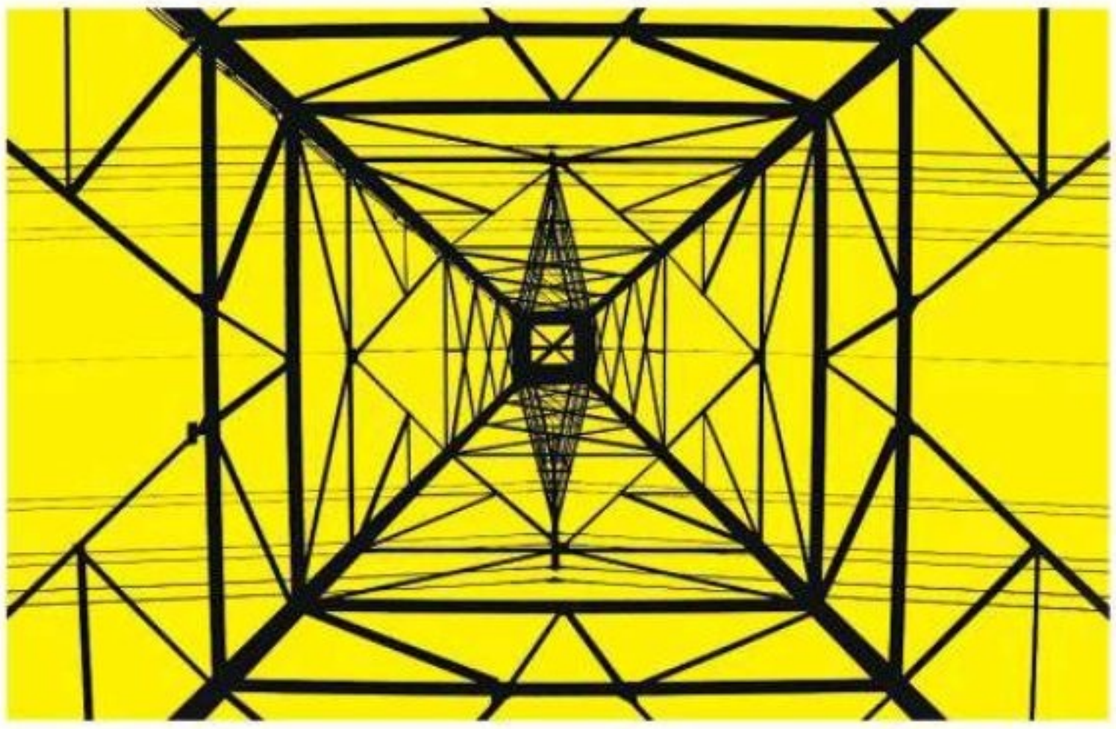
Turning off the kitchen lights and lurking in the dark, Smith fixed a 105mm f/2.8G Nikkor VR macro lens to his Nikon D300s, braced himself on the kitchen sink and took a low angle to set the backdrop of the night sky. Firing his Nikon Speedlight SB-600 at an angle to avoid a harsh reflection, his exposure—1/200 sec at f/22, ISO 160—captures the creature in all his carnivorous glory.

"I got very lucky with the angle and timing," Smith says. "It's such a menacing moment."

—Matthew Ismael Ruiz

NEXT PHOTO CHALLENGE "Shoot When the Mood Strikes" (page 58) includes tips for shooting in the blue hour, the magic moments of twilight. Send us your blue hour shot by June 30—you could win $100. See PopPhoto.com/contests for rules.





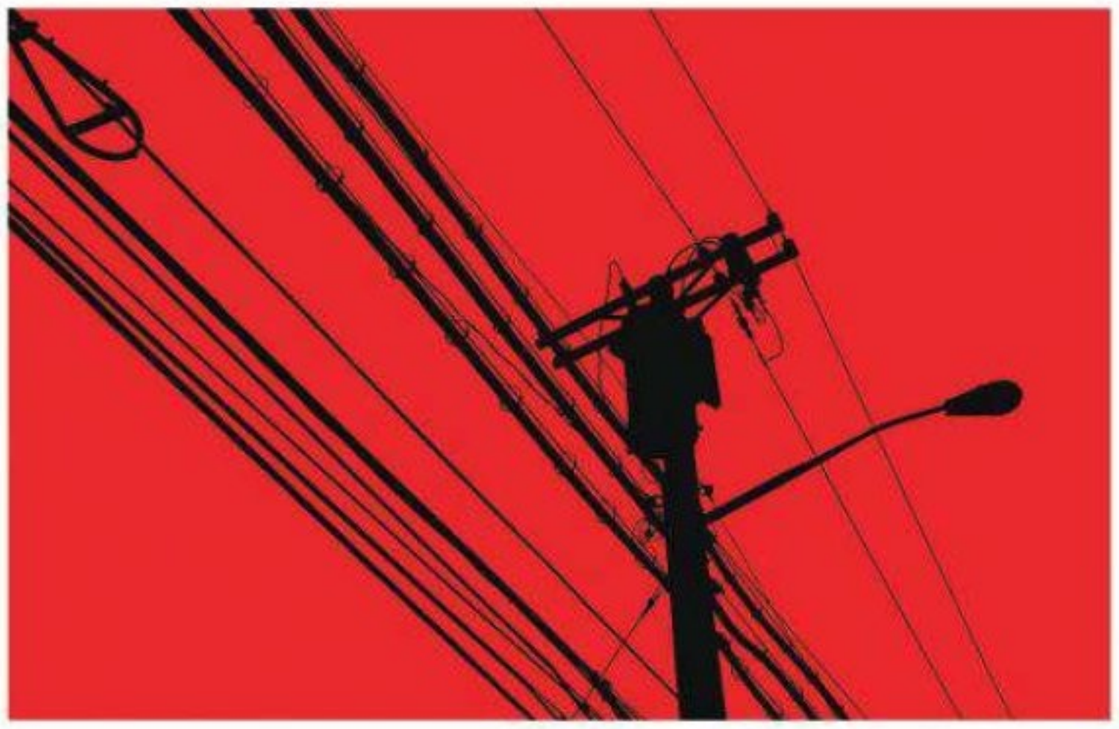


Photo Graphic

Turning common sights into art

PHILIP HABIB makes a point to examine the everyday things in his environment. "There are objects and people you see so often on a regular basis that they could become invisible if you don't stop to notice how necessary they are," says the 52-year-old photographer.

Habib, who lives in Chappaqua, NY, was often struck by certain utility poles and their linking cables at intersections in the nearby town of Pleasantville. "They stand out against the landscape, which made me notice them each time I drove by," he says. "It made me think how strange it is how little attention we pay to these lines that connect people across regions."

So early one overcast morning, he took his Canon EOS 5D Mark II and 24–135mm f/3.5–5.6 Canon

See more of Philip Habib's work at philiphabib.com.

MINOO

PHILIP HABIB (8)

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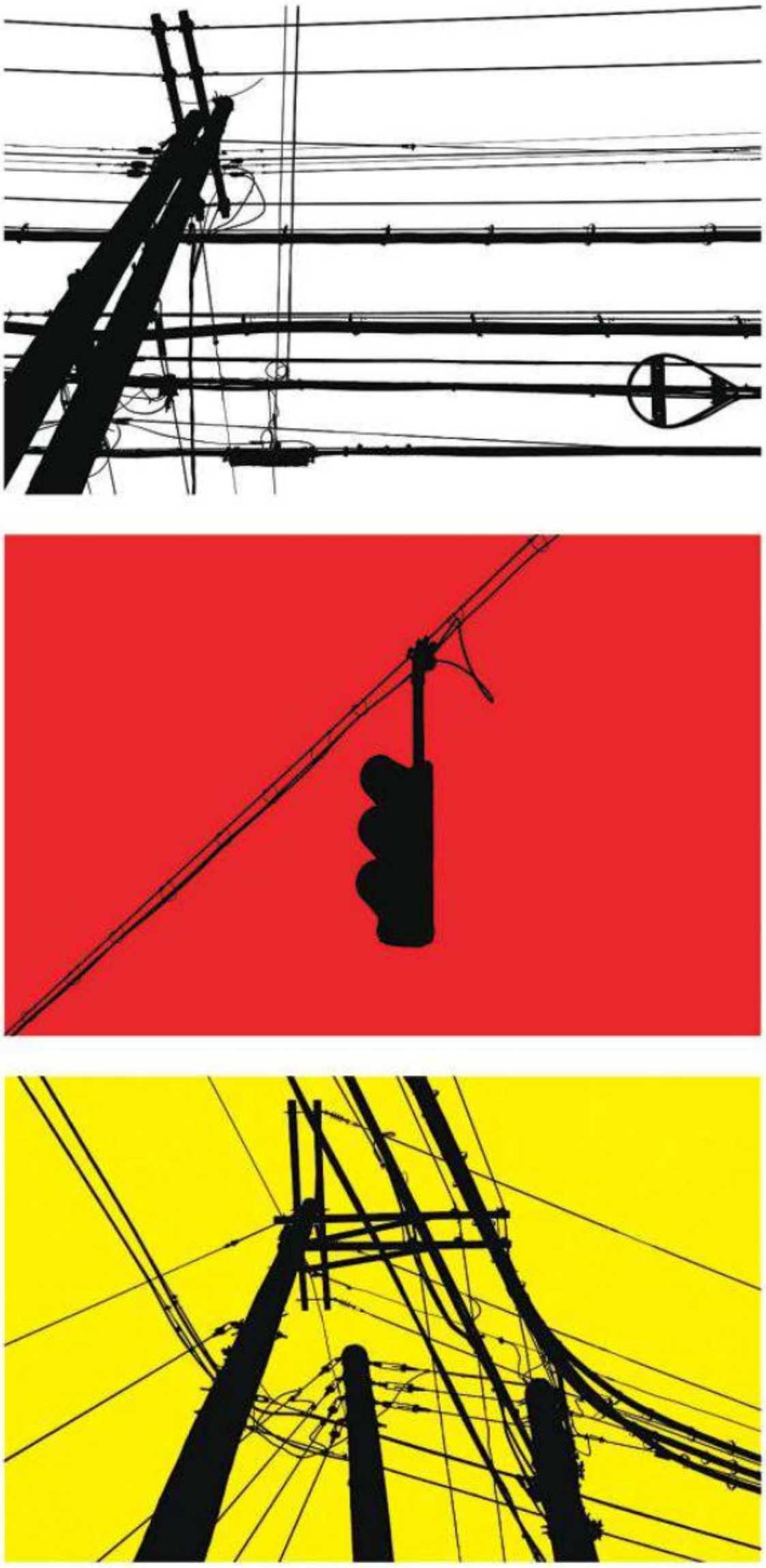
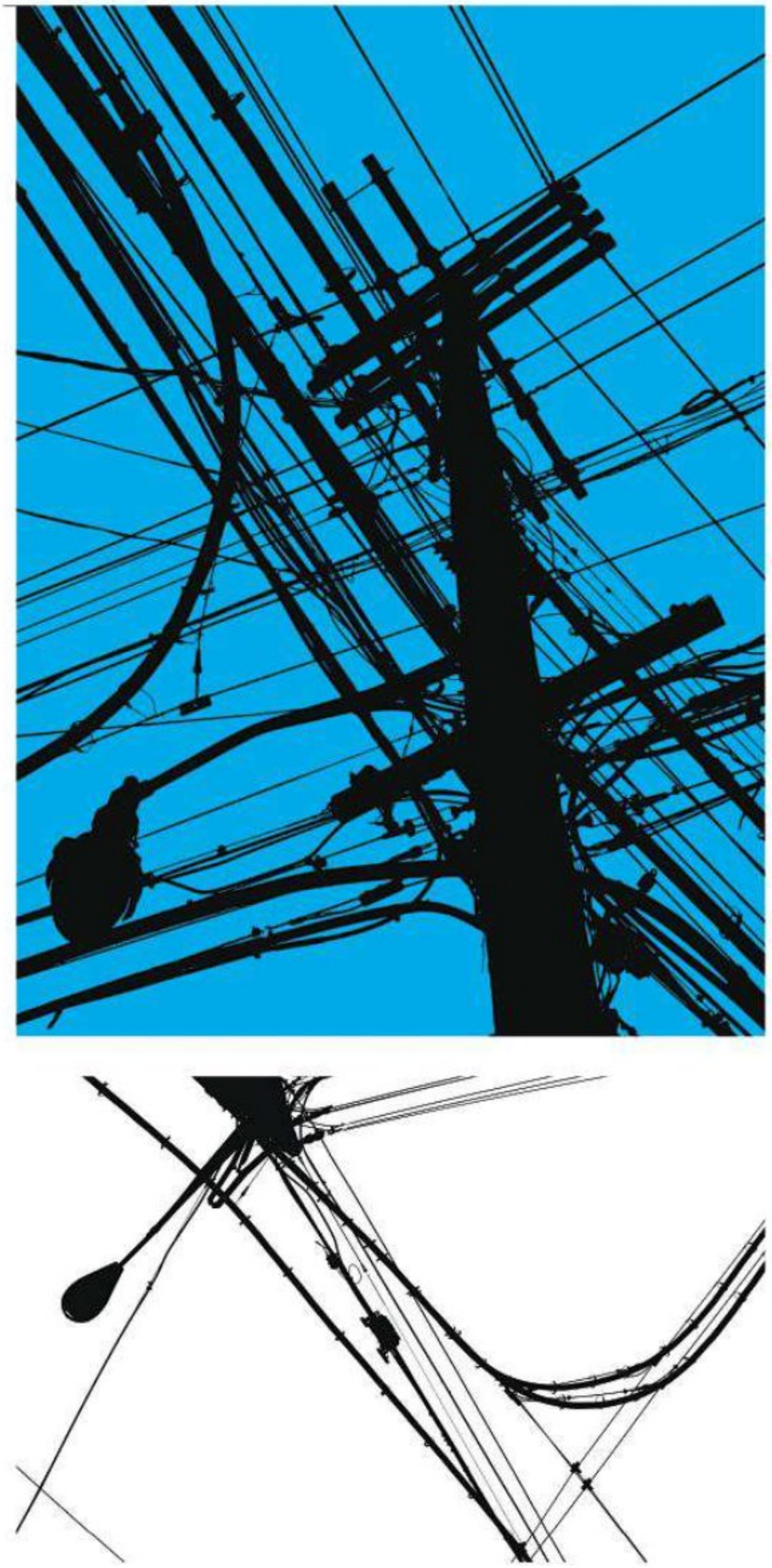




Habib's "Wired" images were captured at the intersection of Bedford Terrace and Bedford Road in Pleasantville, NY.

EF lens and shot the wires all day, from sunrise through sunset. He'd chosen gray weather because he wanted the wires and poles to stand out in stark contrast against the sky.

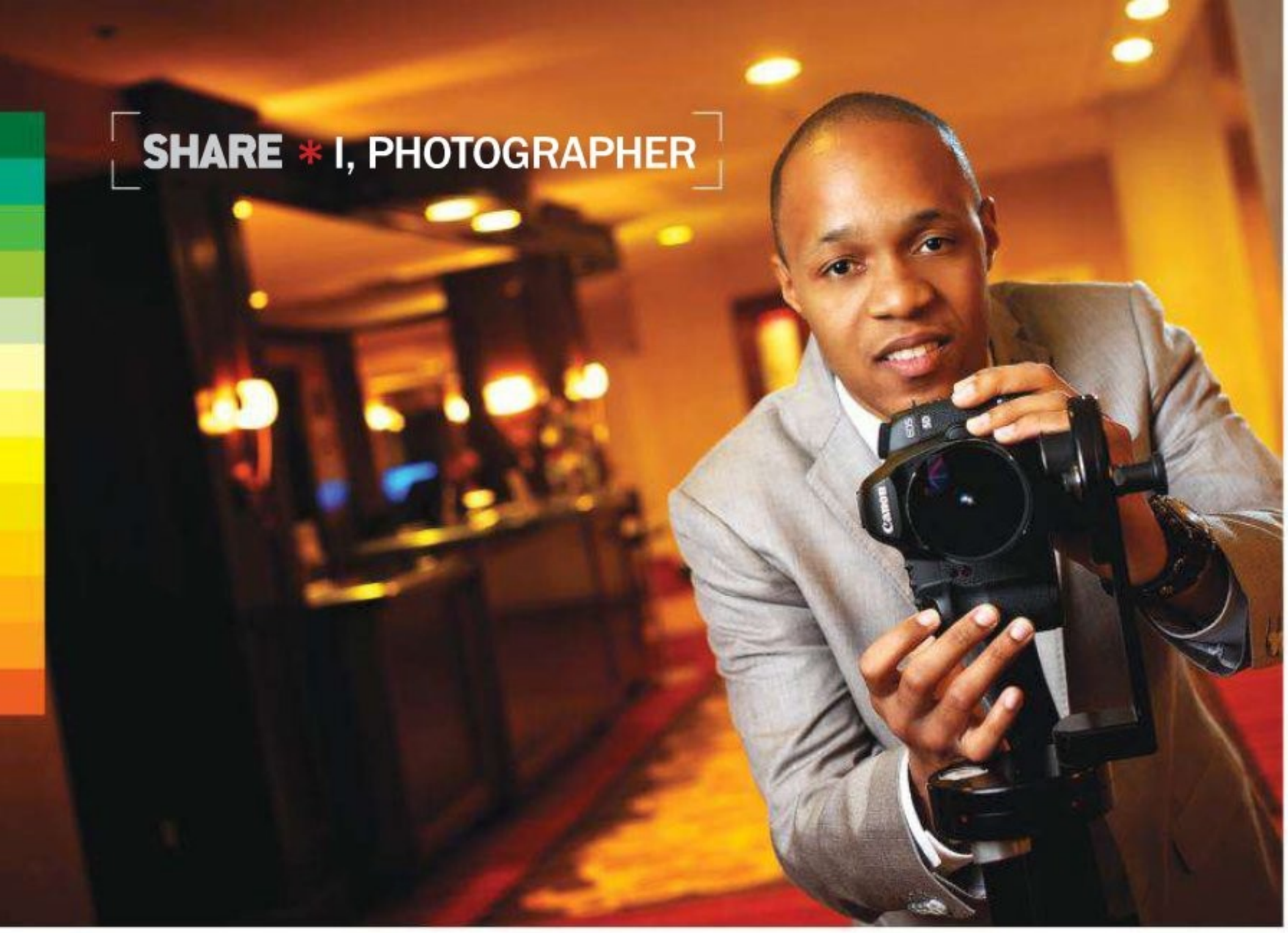
But when he looked at the images, this contrast wasn't enough. Not until a few months later, after playing with them in Adobe Photoshop, did he decide what he wanted to do with them.

The compositions reminded him of the Dutch Modernist painter Piet Mondrian. "In my earlier still-life photography, Mondrian was a big influence, and the electrical lines reminded me of his works in yellow, red, and blue," says Habib.

With this insight, he masked off the background using Photoshop CS5's Color Range tool, then fine-tuned the lines with a hard-edged brush. Next, he replaced the backgrounds with shades of red, yellow, and white that matched Mondrian's palette, other than the lighter shade of blue, to enhance contrast.

The full series was displayed in late 2011 at the Anyway Around Gallery in Brooklyn. And Habib continues to explore ubiquitous subjects, most recently brown paper bags. "If we see something everywhere, especially if it's an inanimate object, we tend to ignore its context," he says. "But if that object is everywhere, there's a good reason to pay attention."

—Lori Fredrickson



Virtual Realist

A hotel specialist shows us around

Washington DC-based hospitality and virtual tour photographer Jason Flakes welcomes hotel guests before they book. Check out more of his work at jflakes.com and at PopPhoto.com/flakes.

How did you get into hospitality photography? My background is in industrial design, but I grew up around photography. So when my department was laid off four years ago, I fell back on it. Hospitality is one of the largest career tracks for photographers. My first contract was with Holiday Inn, and shortly after that I started photographing new construction for hotels and resorts, and doing virtual tours.

What is a virtual tour? A collection of images of a space that is stitched together to make a 360-degree panoramic picture, and put in software that lets users view the entire space as if they were standing in the room.

Do you shoot these differently? For a regular interior shoot, you can set up strobes inside lamps or in other parts of the room that will be out of the shot. A virtual tour is more difficult to light, because you can't have shadows; when you are shooting 360 degrees, every part of the room will be shown. You also have to make sure there are no moving elements, like people walking through the lobby or a spinning ceiling fan.

How do you prepare? I do a walk-through of all the spaces with clients so they can share what they want accentuated in the images and virtual tours. Then I stage the scene to capture aesthetics like color dynamics and architectural features. To make the space appear natural, I use a 5000° K fluorescent low-watt bulb, which brings out the full color spectrum and creates a color temperature that adds a realism to the virtual tour. I shoot large spaces at dusk, because it prevents washed out colors that result from extra sunlight spilling in.

How do you shoot for a virtual tour? I shoot on a tripod with a Canon EOS 5D Mark II mounted on a panoramic head. I bracket all of my exposures, and usually shoot at f/16 from around 1 sec to 1/15 sec. I use a 15mm f/2.8 Canon EF fisheye lens and usually shoot six shots around the room and one shot up. I have to make sure that all of the shots are exactly level, or the virtual tour will make viewers feel like their equilibrium is off.

Any other gear? I use a timer or remote to avoid camera shake—or when there are reflective surfaces, so I don't have to remove my reflection in Adobe Photoshop. I also use a 17–40mm f/4L Canon zoom for architecture, two Canon Speedlite 580EX II flashes, a wireless flash trigger, and an X-Rite ColorChecker.

How do you edit to make the tour come alive? I usually shoot with Auto White Balance because of the mix of lighting, adjusting it with Photoshop and Adobe Lightroom. I export the TIFF files into Pangea Software's Bracketeer and use stitching software to merge all the images together into one continuous panoramic image. There are always small things that are missed when the images are merged together that the eye will pick up, so I make small adjustments to ensure all the points in the images match exactly. Then I upload the final product to tourwrist.com as an HTML 5 file, viewable in Flash. I usually have a turnaround time of three days to a week to get the final product to the client.

What do you like most about what you do? I like getting to travel—about 200 days of the year. Most of it is on the east coast, but two to three months of the year I'm shooting on the west coast. Sometimes I take my wife with me and stay a few extra days. I like the freedom of being my own boss and the creativity of finding the best way to bring a space to life.

—Interviewed by Kathleen Davis

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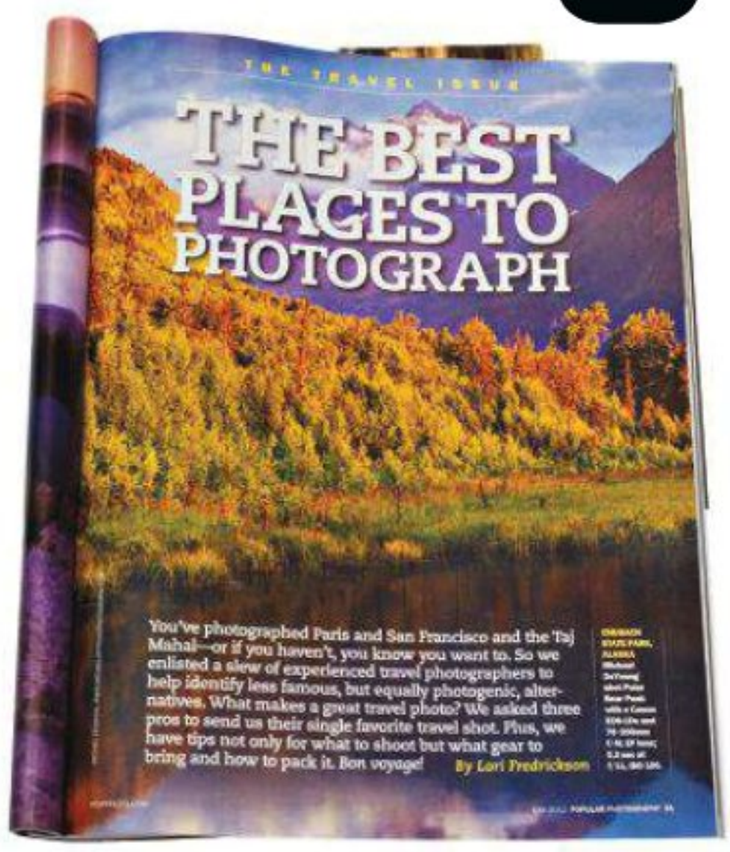
Living Skies


THE TRAVEL ISSUE
THE BEST PLACES TO PHOTOGRAPH
You've photographed Paris and San Francisco and the Taj Mahal—or if you haven't, you know you want to. So we enlisted a slew of experienced travel photographers to help identify less famous, but equally photogenic, alternatives. What makes a great travel photo? We asked three pros to send us their single favorite travel shot. Plus, we have tips not only for what to shoot but what gear to bring and how to pack it. Bon voyage! By Lori Fredrickson

DAN BRACAGLIA

I was elated to find you included Saskatchewan as one of the best places to photograph (May 2012). This beautiful province is overlooked—tourists often try to drive right through without realizing what it has to offer. People like to joke that "Saskatchewan's so flat you can watch your dog run away for three days!" But the province's openness gives us the best view of the sky. From the southern grain belt, to the central parkland, to the sand dunes in the west, and the aurora borealis in the north, Saskatchewan truly is the "Land of the Living Skies."

Sarah Smyth
Lampman, Saskatchewan

WOW, WHAT a great magazine you folks have! I've tried many others, only to find they are just ads and picture entries. I will for sure be getting a subscription for my father and myself. I broke my neck years ago—I can't work anymore. Photography was an outlet for my rehab, and it brought my father and I even closer. We've enjoyed swapping issues back and forth over the last several months. Please keep up the high standards to which all other photography mags should aspire too. Thank you.

Joshua van Loon
via PopPhoto.com

I READ the Letters section of the April 2012 issue and was a little bothered by Ken Barbret's comment. Not all photography is based on creative or artistic ability; rather, it's the ability to tell a story. Life isn't always a pretty sight! Did he actually read the article ("Crowd Funding," Feb. 2012) or merely glance at the photos? Those images did what they were meant to do. They told a story. I am actually very proud of *Popular Photography* for printing such an article. It showed me that people on your staff admire and respect all types of photography. I think Diane Arbus said it best: "I really believe there are things nobody would see if I didn't photograph them." Thanks for a job well done!

April Wygant
Savannah, GA

I READ May 2012's Time Exposure about the 75-year anniversary of Vol. 1 No. 1, from 1937. There is actually a *Popular Photography* Vol. 1 No. 1 from October 1912; Frank Fraprie was editor. The "original" Pop Photo ran until January 1916, when it absorbed *The Photographic Times*, keeping both titles on the cover for a few issues. In the final, April 1916 issue, it was announced that *American Photography* would absorb *Popular Photography* and *The Photographic Times*. The cover of the May 1916 *American Photography* also features the names of the two other titles, marking this Pop Photo's lifespan as Oct 1912–April 1916.

Thom Hindle
Dover, NH

CORRECTIONS: *In "The Best Places to Photograph" (May 2012) Mt. Hood National Forest was referred to as Mt. Hood National Park. On page 37, the 16–35mm Canon zoom is an f/2.8L; on page 57 the 17–55mm f/2.8L is in fact a 17–35mm.*

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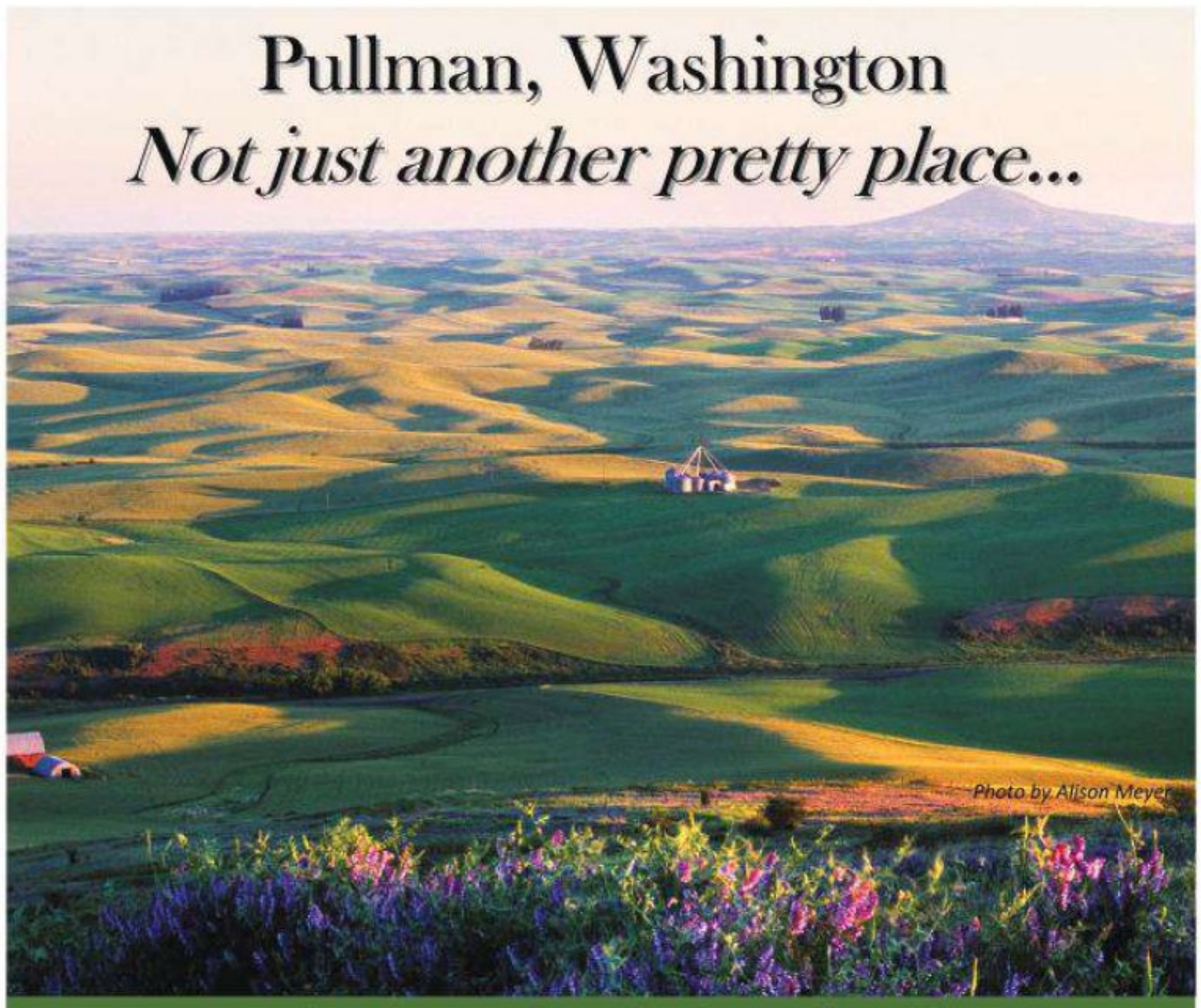

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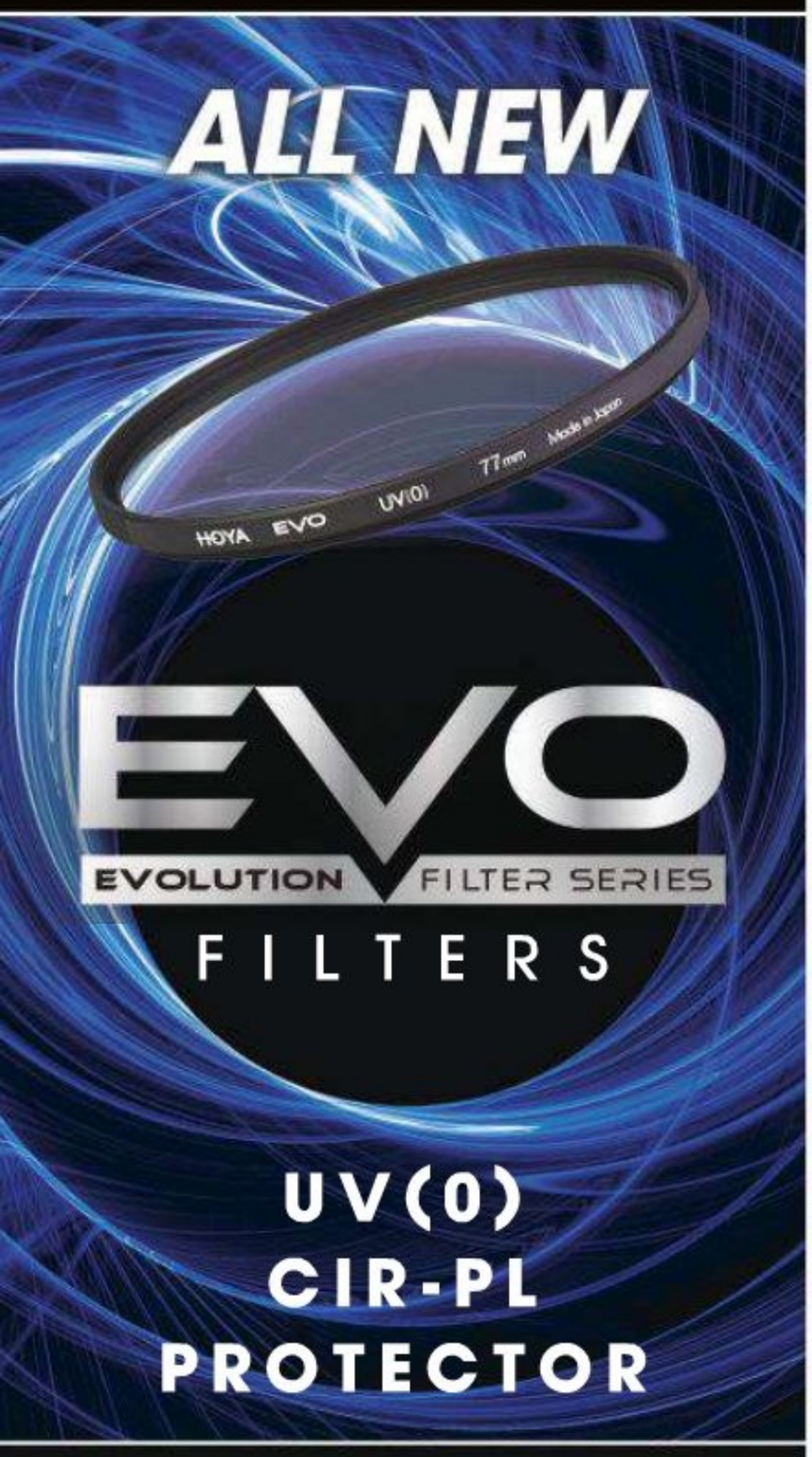

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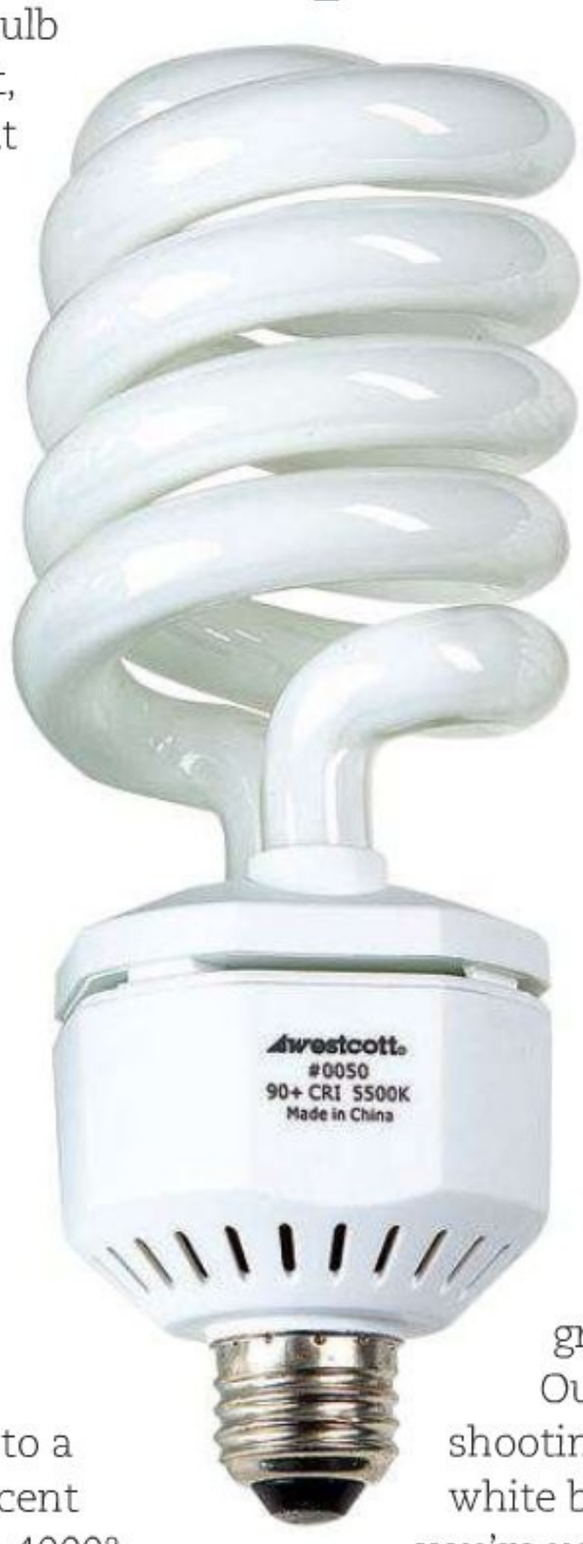
Bulb Exposure

DESPITE THE light-bulb freedom movement, compact fluorescent lamps (CFLs) have become ubiquitous in U.S. households. They make efficient light sources for both stills and video, but check the specs of your bulbs before shooting. CFLs come in a variety of color temperatures, and you might need a magnifying glass to see this number (usually found in tiny type on the bulb base or on the packaging).

They are typically available in 2700° K (similar to a tungsten incandescent bulb), 3000°, 3500°, 4000°, 5000°, and 5500° K (considered photographic daylight). Too often, manufacturers confuse the issue with meaningless designations like "soft white" and "bright white."



Using a color meter, we tested about two dozen bulbs from six different manufacturers, and found that they consistently put out a higher (that is, bluer) color temp than rated, regardless of brand. The 2700° K bulbs put out 3300° K or higher; the 5000° K burned at about 5400° K; and the 5500° K at around 6100° K. Each of the bulbs also put out a greenish color cast.

Our advice for shooting: Set a custom white balance, and, if you're using multiple lamps, use the same brand and color temperature. And if you want to combine lamplight with daylight, go with 5000° or 5500° K bulbs.

Q&A

Depth Bomb

Q My Fujifilm FinePix S4500 has some amazing capabilities, but when I set it to program mode and tried to dial in more aperture options, I found I could only get one or two. (I could get f/11 with some contortions.) According to the fine print in the manual, the aperture is controlled to some degree by neutral-density filters, not by actually changing the lens opening. Doesn't this limit our ability to control depth of field?

Fred Forbes
Palmetto, FL

A *It certainly does. But what it really limits is the ability to set shallow depth of field. As we discussed in our April 2012 Tech Talk, the small sensors in*

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Bracket Bets

NO, WE'RE NOT not referring to March Madness or other innovative forms of work avoidance. We're talking about the time-honored practice of taking several exposures under and over (bracketing) the indicated "correct" exposure. You might think that bracketing is outmoded in this digital era, but the advent of techniques such as high-dynamic-range (HDR) photography have kept bracketing popular. Besides, unlike film, bracketing doesn't make digital photography any more expensive.

Some bracketing basics:

- **For HDR, do burst autobracketing.** Even though many HDR apps are designed to align exposures, it's best to keep them aligned from the beginning, and take them in as brief an interval as possible. Regardless of whether or not the camera is on a tripod, fire the brackets off in a burst.
- **Use the histogram to determine the bracketing range for HDR**. Set an exposure that clips the curve on the left, then set one that clips the curve on the right. That's the range your brackets should cover.
- **Bracket only the shutter speed for HDR**. Changing the aperture affects not only depth of field, but image sharpness as well.
- **You can also do one-sided (or lopsided) brackets**. By adjusting exposure compensation after you've set your autobracket, you can move the zero point up or down the exposure scale.
- **Use 0.7 EV (a.k.a. 2/3 stop) as a standard interval.** Technical Editor Philip Ryan—as our lead camera tester, he does *a lot* of bracketing—points out that this is enough of an interval to be a distinct difference, but is still narrow enough to allow fine adjustment of the exposure in software.
- **Shoot RAW.** Whether bracketing for HDR or exposure insurance, you get a lot more picture information in RAW.

compact cameras provide vast—often too vast—DOF. The maximum f/3.1 aperture of your S4500 is the full-frame equivalent of f/18 in terms of DOF at any given subject magnification; f/5.6 will give you the DOF of about f/32.

Apertures in cameras of this type are so small that a true f/11 would essentially be a pinhole, and the resulting diffraction would seriously degrade images.

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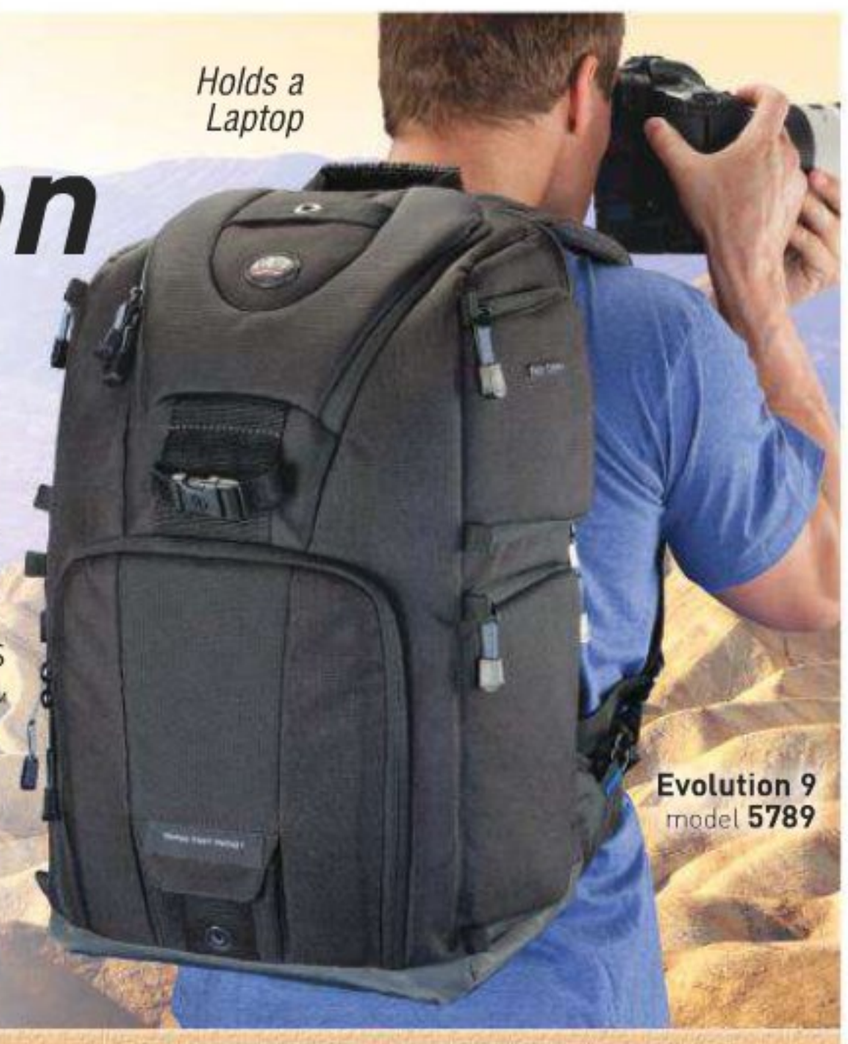

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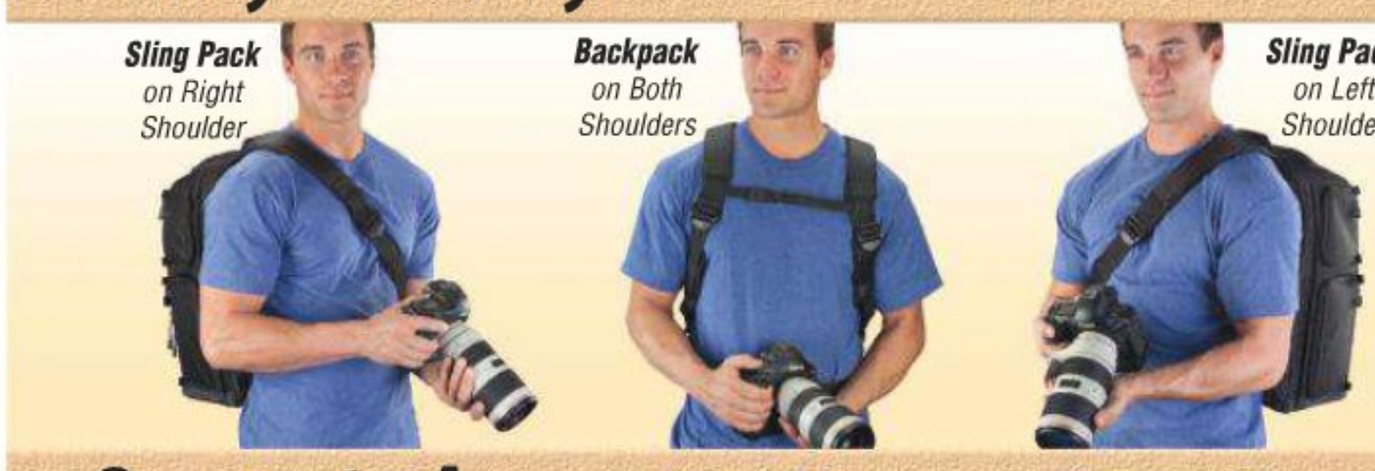

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So Emotional

This month's winners seek the ethereal in the physical world

MONTHLY PHOTO CONTEST

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3rd Place $100 Prize

ZACHARY SPIRA-BAUER, 28, CINEMATOGRAPHER/PHOTOGRAPHER, WOODBURY, NY "This shot is about submerging ordinary people underwater to stimulate the unconscious emotions of desire and fear. Water reduces color, contrast, and sharpness, so I wanted to limit the amount of water between myself and the subject—I used a sharp prime lens and got close. I lit her as softly and naturally as possible, diffusing direct sunlight and lining the floor with Mylar sheets to fill in any shadows."

TECH INFO: Canon EOS 5D Mark II with 24mm f/1.4L II Canon lens in ASL Splash Bag with flat port lens. Exposure, 1/640 sec at f/5.6, ISO 500. Color, contrast, and luminance corrected in Adobe Photoshop CS5 and Lightroom 3.

2nd Place $200 Prize

BRANDON DEWEY, 27, U.S. NAVY RESCUE SWIMMER, NORFOLK, VA, AND VALLEJO, CA "In Italy on deployment, I spent Christmas in Rome. On Christmas morning, I woke up early and caught the sun rising over the Forum. Unable to get the wide angle I wanted with my kit lens, I rotated my camera to vertical and made a panorama, bracketing each exposure and using the self-timer to reduce shake. That night I used Photomatix to make two HDR images, which I stitched together in Photoshop." **TECH INFO: Nikon D50 with 18–55mm f/3.5–5.6 AF Nikkor lens; 1/4 sec at f/16, ISO 200. HDR image made in Photomatix Pro 4; panorama stitched in Photoshop CS4; minor adjustments and noise reduction in Lightroom 3.**

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CAMERA : SIGMA SD1 : ISO100, F5.6, 1/160sec | LENS : SIGMA APO MACRO 150mm F2.8 EX DG OS HSM : 150mm | Copyright© Olga Vasilkova, V-studio

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1st Place
$300 Prize

CHRYSTINA GEAGAN, 41, PHOTOGRAPHER, SANTA FE, NM, AND MARINA DEL REY, CA

"This African bush elephant was passing through Ndarakwai Ranch in Tanzania. I wanted to get close enough to frame her with the rugged terrain in focus and the dramatic sky as a backdrop. Seeing wild elephants roam free for the first time was so moving, my eyes welled up—so I stopped shooting for a bit and just let myself feel it."

TECH INFO: Nikon D3X with 14–24mm f/2.8G AF-S Nikkor FX lens; 1/640 sec at f/4.5, ISO 100. Cropped in Lightroom 3; converted to black-and-white in Nik Silver Efex Pro 2.

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HOW

EXPERT TIPS AND TECHNIQUES FOR BETTER PHOTOS

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NEW DIRECTION

Exposing yourself to new influences can pay off

JUST AS nutritionists believe you are what you eat, in the visual arts your understanding of what makes a great photograph is based on the work that you see.

So says Los Angeles-based street photographer Eric Kim (erickimphotography.com), who followed his own advice in Zurich, Switzerland, while viewing the 2011 World Press Photo exhibition. Kim had just finished giving a street photography workshop with Thomas Leuthard and was looking to rejuvenate himself with a visual feast, as it were. What good fortune to have this inspiring show in town.

Sitting on a bench across from Vincent Yu and Seamus

Kim shot the scene with his Ricoh GR Digital III; exposure, 1/140 sec at f/1.9, ISO 400.

ERIC KIM

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Murphy's award-winning images of Kim Jong Il and Julian Assange (respectively), he was studying the photos when Assange "suddenly sprouted legs." Amusing as Kim found this, he wanted a little something more in his own photo, having studied this kind of juxtaposition before. "I wondered, 'What if someone else stood behind [Kim Jong Il's] photograph so it looked like there were two pairs of legs?'" he recalls.

It wasn't long before luck stepped in again: Someone walked up behind Kim Jong Il, bringing the photographer's idea to life. He sprang into action with his Ricoh GRD III compact camera and quickly shot about 10 frames from various angles. Although he had a DSLR with him at the time, Kim chose the Ricoh because of its extremely quiet shutter, making his activity much more discreet. When the person on the left crossed his legs, Kim got the shot and knew his idea had reached its potential.

"When it comes to street photography, luck plays a huge role," he says. "However, luck is not enough to make a great street photograph." Kim believes it important to study the masters of the form to learn the basics of the genre, citing Henri Cartier-Bresson, Eugene Atget, and Andre Kertesz as fundamental to his style of street work.

"The most challenging thing about street photography is that you cannot anticipate any of your shots 100 percent," he says. "I often have a general idea what I want to capture when I'm out shooting, but I typically don't know the type of shot I want. 'I'll know it when I see it' is a saying I believe in."

And if your head is filled with the best, what you see has got to be good before you press that shutter release. *—Laurence Chen*

FIX IT FAST

Kid Lit

Turn off the dark

Tim Barto wisely set an aperture of f/2 on his 50mm f/1.8 Canon EF lens, which produced a creamy out-of-focus background. Exposure with a Canon EOS 40D was 1/250 sec at ISO 200.

TIM BARTO

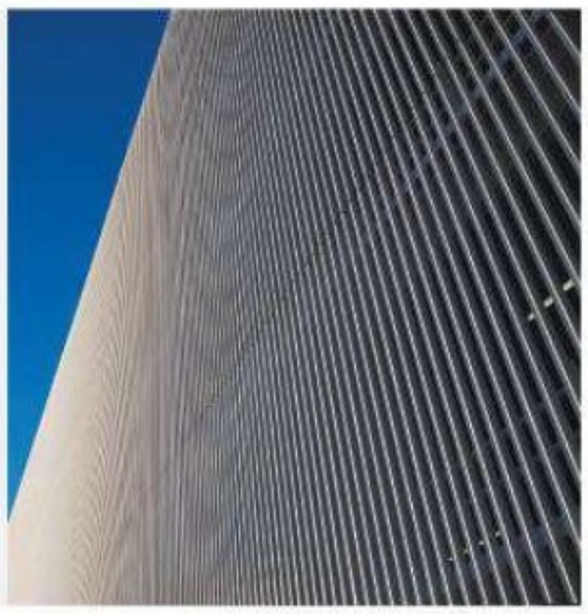
AT FIRST GLANCE, we found Tim Barto's portrait of his son Tristan quite striking. Upon further viewing, we found the rendition *too* striking—too dark and forbidding for the subject.

Working with the photographer's original RAW file, we converted it with Adobe Camera Raw Process Version 2012 (found in Photoshop CS6, which we're testing in beta). We increased midtone exposure and brought down highlights with sliders, and shifted the white balance slightly warmer. We smoothed the skin a bit with the Healing Brush, then used Content Aware Fill on a layer to darken distracting detail on the right. Finally, we cloned out a few really wild strands of hair, but left most of the unruly wisps intact. Time fixing: 20 minutes.

—Dan Richards and Debbie Grossman

PHOTO GLOSSARY **MOIRÉ**

THE FRENCH WORD for a type of fabric. When moved, moiré cloth produces a wavy or rippled effect due to unevenly spaced threading. In imaging, it often appears when photographing monitors or scanning halftone images. In conventional digital photography, moiré occurs when photographing a grid or linear subject with line spacing that's denser than that of the sensor's pixel array. Three ways to get rid of it are switching to a camera with a higher-resolving sensor, introducing a stronger anti-aliasing filter, or using software in post.



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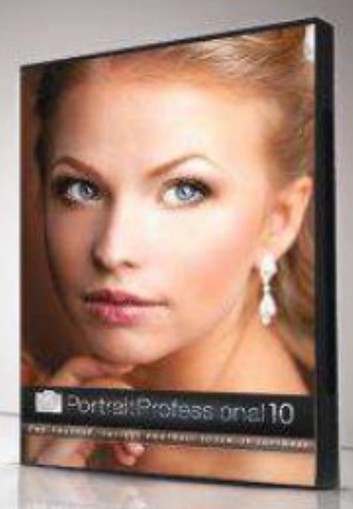

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QUICK TIP

Art in Motion

Move the lens for long-exposure abstractions

JANICE SULLIVAN, a pro shooter from Southern California, includes among her personal work a set of photographs she calls "Macro Lens Paintings." Like painting-with-light imagery, these require long, multi-second exposures. But instead of moving her light source while the shutter is open, she shifts the camera.

To use this technique with flowers, she suggests you:

- Give your subject a bit of structure and line by focusing on it and using an aperture no larger than f/10. For at least part of the exposure, she holds still to make her subject clear. "It prevents the flowers from turning to mush," she says.
- Use flowers that have contrasting colors.
- Move the lens to follow the leading lines of the subject (here, they are vertical).
- Tether the camera to a computer, if possible, to help gauge your success as you shoot.
- Experiment to find the right shutter speed. For her, this is often 3 or 4 sec.

Janice Sullivan used a Canon EOS 5D and 100mm f/2.8 EF Canon Macro lens for these chrysanthemums, "painting" them for 1.6 sec at f/10, ISO 100.

JANICE SULLIVAN

What's This?

HDR Setting

▶ **What it is:** Found on the main command dial of the new Pentax K-01 interchangeable-lens compact, this setting is the first we have seen that elevates high-dynamic-range compositing to an external control dial on a camera body.

▶ **How it works:** With a single shutter press, the camera rapidly makes and merges three JPEG images of a scene at three different user-set exposure intervals (underexposed, normal, and overexposed). The K-01's sensor-based stabilization system helps align them.

▶ **When to use it:** In high-contrast scenes where shadows are dark and highlights extremely bright.

DAN BRACAGLIA

30-SECOND SOFTWARE

RETOUCH PREVIEW When you're retouching in Adobe Photoshop, you often need to zoom in very close to make careful adjustments to your image. But from that near a perspective, it can be difficult to gauge how your work affects the image as a whole. Here's a neat trick that will let you see two differently zoomed representations of your image simultaneously: Go to Window > Arrange > New Window For and choose the file you're working on. Then line them up on a single screen or, better yet, two monitors, and zoom in on one and out on the other. Any adjustments you make to your zoomed-in image will show on the zoomed-out one, making it easy to see the effects of your retouching as you work.

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Fest Fever

Canada's Montréal is jumping this June

AS "THE CITY OF FESTIVALS," Montréal, Quebec, lives up to its reputation year-round: even in the cold months of January and February, revelers can be found dancing in her streets.

But photographers who want to capture its creative energy outdoors will have day-long photo ops during the peak summer months, particularly in June, when popular events such as the Les FrancoFolies, Montréal Baroque, and the Festival International de Jazz run alongside scattered revelries throughout this romantic locale.

Frédérique Ménard-Aubin (frederiquemenardaubin.com), a photographer who lives in Montréal, has been capturing the city for the cultural agency L'Équipe Spectra, says, "In June, there's a tremendous amount of cultural activity throughout the city. As photographers walk the architecturally rich Old Town, they will encounter circus performers, dancers, and outdoor theatrical productions. Photographers never lack for eye-catching subjects."

If you plan on photographing stage acts, be forewarned that many of the indoor shows require press passes.

One of the largest French-speaking cities in the world, Montréal offers a photogenic psuedo-European experience that is much closer to home.

—Lori Fredrickson

FRÉDÉRIQUE MÉNARD-AUBIN

WHERE TO GO

The City of Festivals

Architectural shooters will be drawn to Montréal for its ornate basilicas, but the main reason to head north this June are the colorful festivals. One boasts the world's foremost fireworks competition. Offerings include:

- **FRANCOFOLIES June 8–16; francofolies.com**
This celebration of French music has nearly 300 concerts—more than half of them with free admission. The venues spread across the city, so as you make your way from show to show, budget time to capture Old Montréal's romantic streets and historic buildings. Don't miss the breathtaking view of the sparkling city below from Mont Royal's peak.
- **FESTIVAL INTERNATIONAL DE JAZZ June 28–July 7; montrealjazzfest.com** Expect crowds at the world's largest jazz festival, as well as the colorful energy that makes braving those crowds worthwhile. Bring a wide-angle lens for the streetside revelry and a telephoto for performances.
- **INTERNATIONAL DES FEUX LOTO-QUÉBEC June 30–August 3; internationaldesfeuxloto-quebec.com**
This fireworks festival on Tuesday and Friday nights features displays from the world's top companies.
The view from the Jacques-Cartier Bridge puts you right near the action, but beware of the structure's vibrations that can blur even tripod-steadied shots.

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Blur Better

Control focus in Photoshop CS6

DEBBIE GROSSMAN

EVEN THOUGH we were still working with the beta version of Adobe Photoshop CS6 at press time, we couldn't resist writing about one of the program's most useful new features, the Blur Gallery. Photoshop never did blur particularly well; the legacy blur tools, such as Gaussian and Motion blur, have a tiny preview window and few adjustable parameters. Things improved with the introduction of Lens Blur, but to apply it locally you had to first create a selection or a mask, which made it difficult to use on the fly.

CS6's new Blur Gallery is like a program-within-a-program.

The new Blur Gallery provides three methods: Field Blur, which can blur a whole image, Iris Blur, which lets you blur your picture but designate one or multiple areas of sharpness, and Tilt-Shift, which creates a miniature-toy effect. You can apply all three at once or one at a time, and add and adjust the amount of *bokeh*.

The Gallery may look familiar to those who have tried OnOne's FocalPoint tool, which has a similar (though more sophisticated) method for adding selective focus. As in OnOne's program, you adjust Iris Blur using

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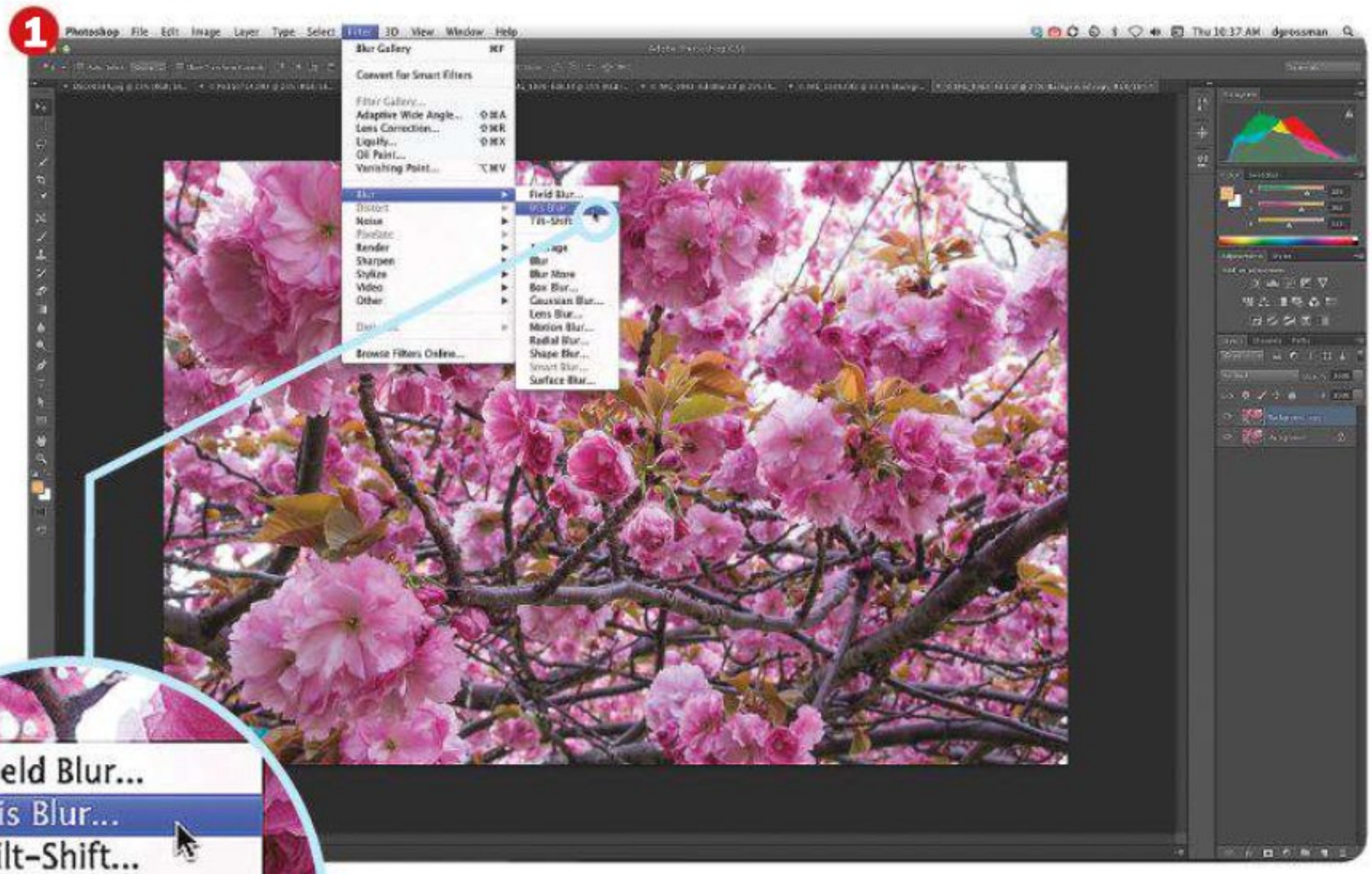

Step 1

Start by duplicating your background layer; it's always a good idea to keep an untouched version of your original file on its own layer. **Then go to Filter > Blur and choose Iris Blur from the menu.** There's no Blur Gallery menu item per se, but choosing Field, Iris, or Tilt-shift opens the gallery and gives you access to all three methods.

a floating tool. In Photoshop, you can adjust the size, shape, and edges of the area of sharpness as well as the amount of sharpness in a given sharp area. The tool is great for achieving a Lensbaby-like look or creating an image with varying areas of sharpness that couldn't exist in reality.

Here's how to use the Iris Blur feature; the other two methods work in a similar fashion.

–Debbie Grossman

Using Field Blur mode yields a result similar to this, but it affords less edge control.

Step 2

When you first open the Gallery in Iris Blur mode, you'll see an oval of sharpness in the middle. Grab it by its center to place it. **To adjust the blur level, move the slider in the toolbar or grab and move the circular slider in the center of the floating blur tool.** As you adjust, you'll see a heads-up display showing you the level of blur. You can always go back and modify it using either method.

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Step 3

Now adjust the size and shape of the sharp zone. **Click and drag anywhere on the outer circle to enlarge and shrink the area.** Drag one of the two small dots to go elliptical and rotate the orientation of the ellipse. Pull out on the square to square off the corners. The four interior dots indicate the beginning of the transition between sharpness and blur. You can pull them inward for a slower transition, which can be a good idea if you chose a high amount of blur.

Step 4

Next add another area of sharpness. **Click on another spot that you'd like to be sharp, then adjust its size and shape. Add as many areas of sharpness as the image needs.** To get rid of an area, click on a point and tap the Delete key on your keyboard. With all the circles and points, it can be difficult to get a sense of your image's progress. To hide them all, use the keyboard shortcut Ctrl (Command on a Mac) + H.

Final Step

Having too many areas with the same levels of sharpness looks strange, so modify their sharpness individually. **Click on a point to select one of the in-focus areas, then use the Focus slider in the options bar to dial down the sharpness in some of them.** When you're done, click OK to finish. To save your mask for further modification, check the Save Mask to Channels box at the top of the screen.

INTERFIT

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Balance Beams

Capture what's in front of the sunset

LIVING ON the island of Maui in Hawaii, commercial and portrait photographer Eric Rolph (rolphphoto.com) has the rare luxury of choosing sea-swept sunrises *or* sunsets to use as backdrops. As you might imagine, he's perfected the somewhat tricky art of balancing fore- and background lighting, where, without the aid of a little artificial fill light, his subjects would typically be much darker than the bright sun beyond.

His suggestions for how you can best strike this balance:

■ **Warm up your fill flash.** To help the cool color temperature of the foreground flash in this photo conform to the much warmer sunset, Rolph placed a Rosco CTO gel over the head of his Canon Speedlite 580EX II. But background color temperatures can change rapidly during sunset or sunrise, so he suggests shooting in RAW and fine-tuning color balance in conversion.

■ **Soften your flash.** Rolph modified his direct flash output by popping it through a softbox-like Photek Softlighter umbrella, held aloft by a monopod serving as a makeshift boom.

■ **Position camera and subject with care.** Place your subject directly in front of the sun as a flag, and then move the camera in as close as possible (with the help of a wide-angle lens) until you've eliminated some or all of the flare.

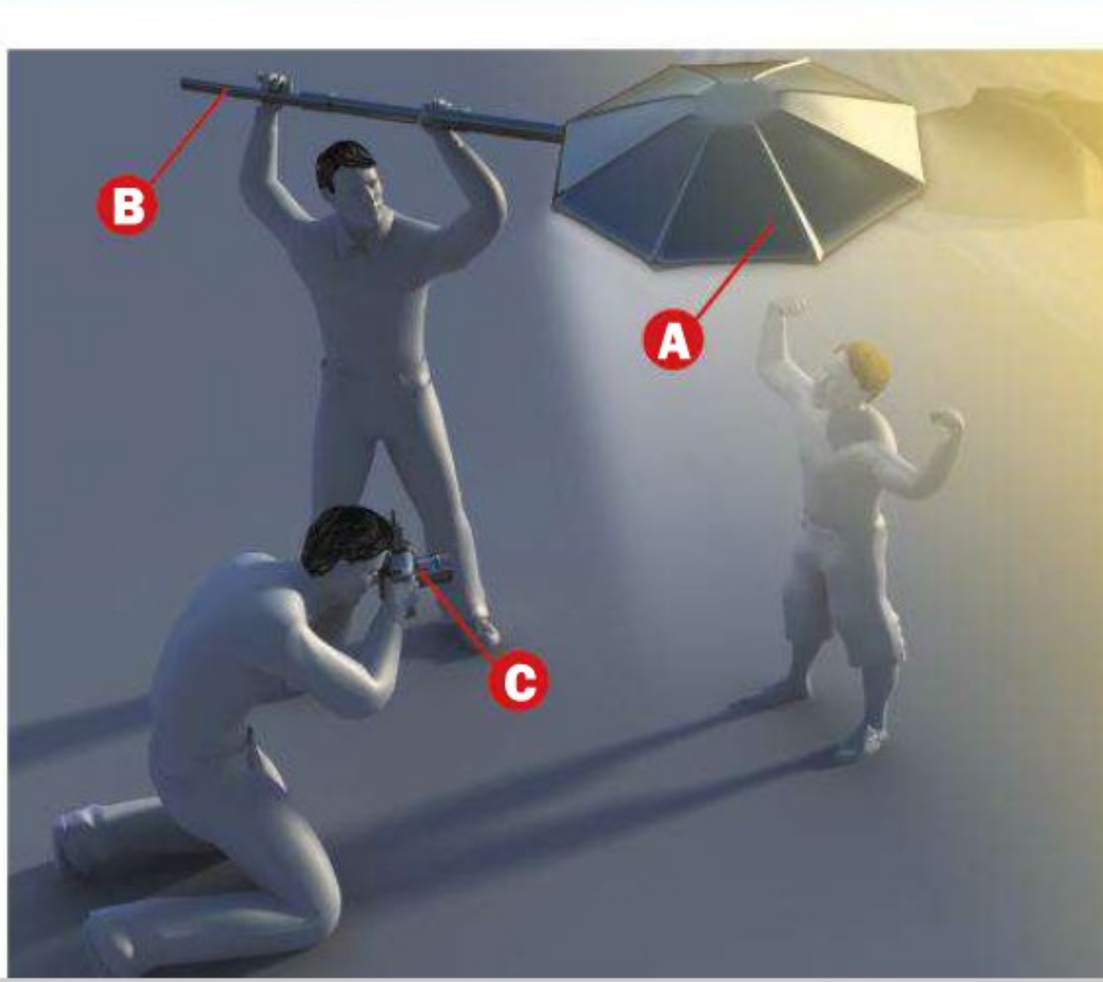
■ **Take care with exposure.** "I've shot a lot of sunset photos with strobe and light modifiers, and find the best way is trial and error," Rolph says. "I make an in-camera evaluative meter reading for the sunset background, take a picture, and then check the histogram to make sure my highlights aren't too overblown. It may take an exposure or two."

With that exposure set, Rolph has an assistant stand where the subject will be and hold the Speedlite at arm's length. The flash is set to manual mode and fired by a wireless PocketWizard Plus II transceiver.

Rolph reviews the exposure of the self-lit assistant on the LCD, makes a flash adjustment and fires another test shot. "After two or three exposures, I usually have it dialed in," he says. "It might be more efficient to use a light meter, but I'm a minimalist when it comes to taking gear into the field, especially when there's salt air and sand present."

As for working with children, Rolph recommends keeping the energy up. Here, he asked his subject, nephew Owen, to act out scenes involving his favorite cartoon hero. "High energy and positive reinforcement helps to keep the attention and interest of children," says the photographer. *—Peter Kolonia*

ERIC ROLPH



KRIS HOLLAND/MAFIC STUDIOS (ILLUSTRATION)

To best light a foreground portrait subject against a setting (but still very bright) sun, Hawaiian photographer Eric Rolph put a Canon Speedlite 580EX II inside a 36-inch Photek Softlighter II umbrella-style softbox (A), and warmed up its output with a 1/4 Rosco CTO warming gel. His assistant suspended the Softlighter above the subject using a Manfrotto 680 monopod (B) as a boom. With everything ready, he posed the child to block the setting sun and photographed the scene with a Canon EOS 5D (C) and 17–40mm f/4L EF Canon zoom at its 35mm setting. He fired the flash with PocketWizard Plus II transceivers, for an overall exposure of 1/180 sec at f/13, ISO 100. In Adobe Photoshop CS5, he later whitened the sunlight to heighten contrast.

THE GEAR

Manfrotto 680B Monopod (used as a boom) **($64, street)**

Canon Speedlite 580EX II **($499, street)**

Rosco CTO warming gel (as sheet) **($6.40, street)**

Winning Streaks

Add life and line to a city after dark

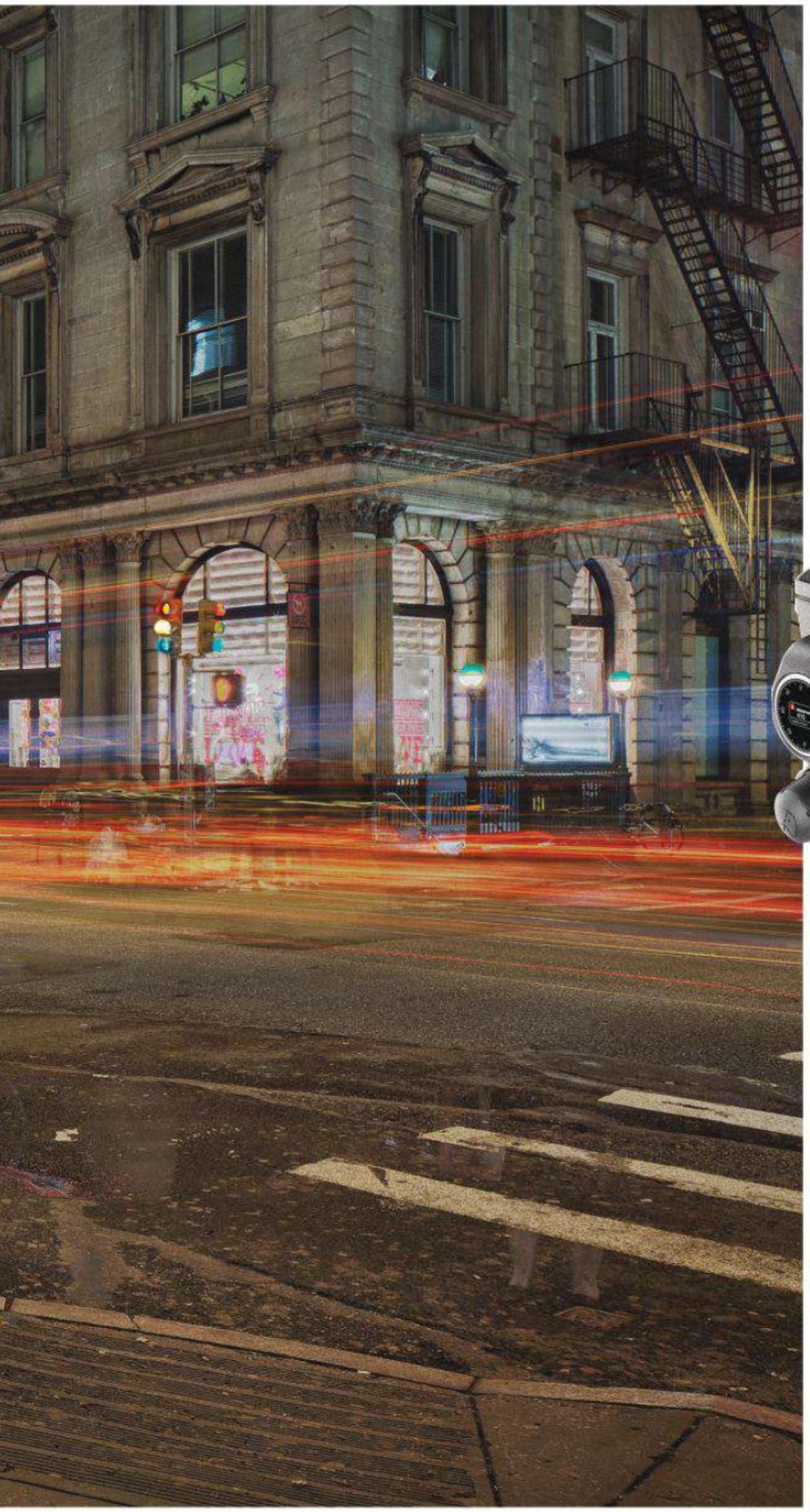
"I MOVED to New York City in 2010 to get my MFA in photography and was at once overwhelmed by the city," says Brooklyn-based commercial shooter Kai Wang. To this newcomer from Taiwan, the experience was a paradoxical mix of large rushing crowds and personal loneliness.

For more of Wang's night photography visit www.kai-wang.com.

"I began shooting street scenes at night. They somehow mirrored something I was feeling," he says. "The saturated colors, solid masses of dark buildings, the light trails, and ghosts of hurrying people suggested communal energy and personal estrangement, two forces that alternately brightened and darkened my life at the time."

The project forced Wang to deal with a problem that every

KAI WANG



night shooter faces: high contrast. Typically, a city's well-lit commercial and residential spaces—including street and car lamps—are many stops brighter than the shadowed areas. He solved this problem with high dynamic range (HDR) imaging. By making separate exposures for highlights, midtones, and shadows, and then merging them, he has found an effective way to tackle nighttime contrast. *—Peter Kolonia*

SIMPLE ▬▬▬▬▬▬▬▬▬▬ COMPLEX

Wang used a Canon EOS 5D Mark II for this night scene, and performed the HDR compositing with Nik HDR Efex Pro (A). He shot from a Manfrotto 410 Junior Geared head (B) on a Gitzo GT3540L tripod (C).

Step 1

Scout locations. "For me, the best sites are free of tourists, but still highly active and well lit," Wang explains. He picked a point of view from which only automotive tail lights were visible. Headlights would have been blown out and colorless.

Step 2

Setting up. As with all HDR compositing, you must maintain alignment of stationary subjects between exposures. This generally requires a tripod—and it's a must with an exposure this long.

Step 3

Nail the exposure. "I recommend capturing RAW files for the most latitude during postproduction," says Wang. "I set the exposure mode to manual, with shutter speeds from 1 to 30 sec." He exposes darker backgrounds at about 30 sec and the light trails from passing cars at about 8 sec.

Step 4

Process RAW files. Wang does his overall color adjustments in Adobe Photoshop Lightroom, making sure that the corrections are identical for all files. He then exports the RAW files as 16-bit Adobe RGB TIFFs, which he views in Adobe Bridge, then merges with a plug-in by navigating to Tools > Nik Software > Merge to HDR Efex Pro.

Final Step

Fine-tune tone. After merging the exposures, Wang tone-maps the composite using the HDR Methods tool in Nik's HDR Efex Pro. "I start with Method Strength at 50% and toggle thorough all the HDR Methods to see which looks best," he says.

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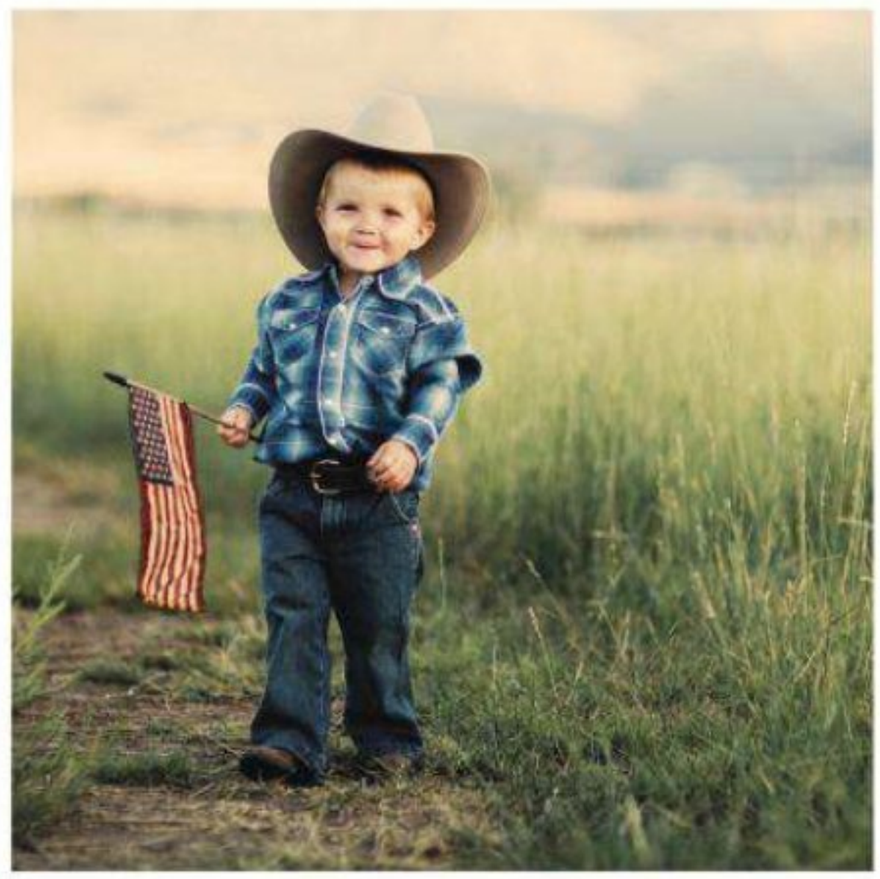

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GREAT APES

Our closest kin in the animal kingdom, chimpanzees and gorillas never fail to fascinate. You can visit them in zoos, and a handful of portrait photographers have worked with them in the studio. But nothing beats trekking into their habitats in Rwanda, Uganda, and Congo to capture them in the wild.

Text and photos by Jad Davenport

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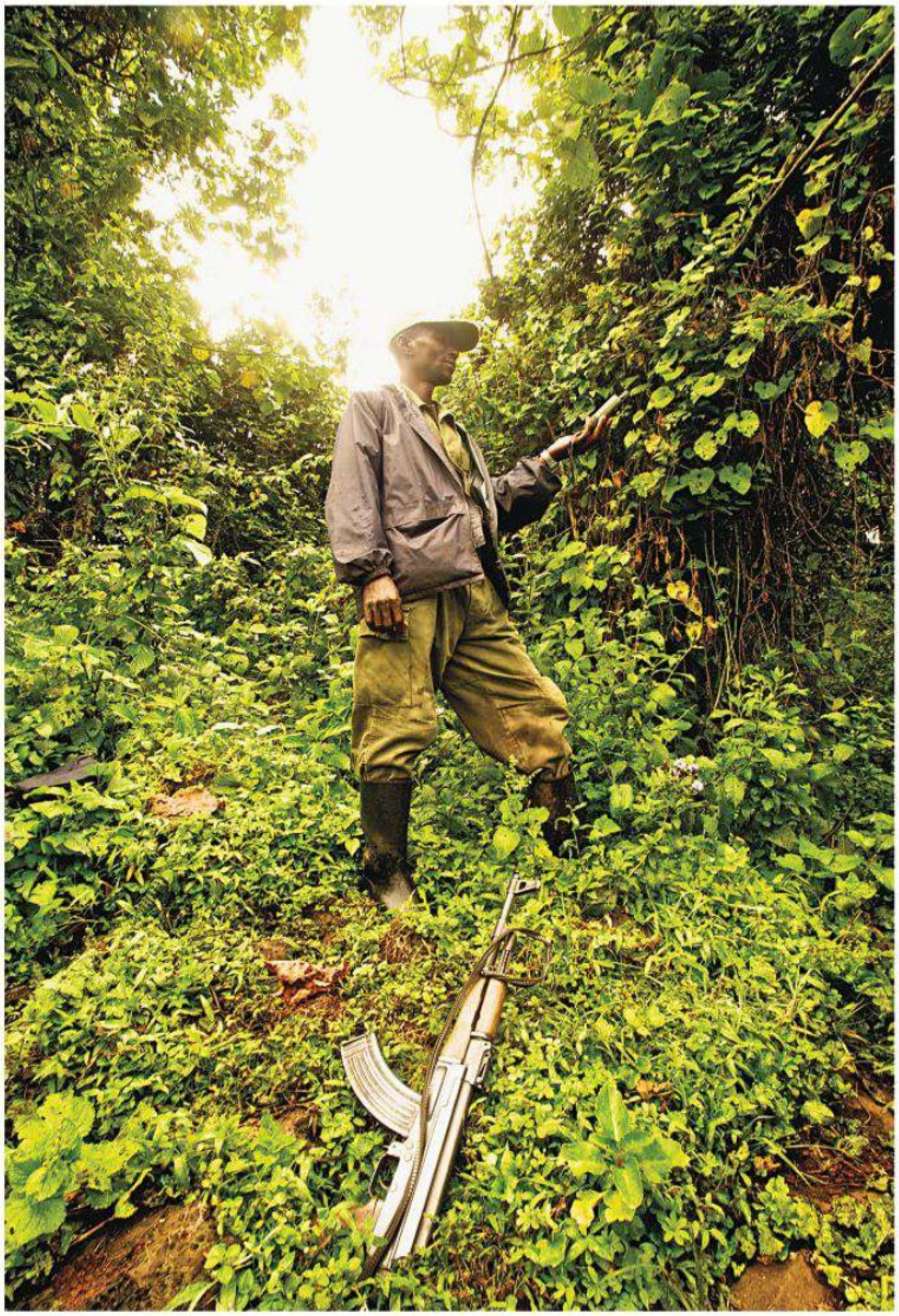
CHIMPANZEE NYUNGWE FOREST, RWANDA
Meter for the face (no flash allowed). For primate portraits, concentrate on the hands and eyes—our gaze is drawn to the traits we share. Nikon D700 with 400mm f/2.8G Nikkor VR; 1/400 sec at f/2.8, ISO 640.



RANGER, VIRUNGA NAT'L PARK, CONGO
War has killed many gorillas here and driven the rest deep into the forest. I zoomed to 17mm, set a warm color balance, and over-exposed: 1/60 sec at f/16, ISO 320.

"YOU HAVE exactly 60 minutes to photograph," the guide whispers.

We're 6,000 feet up in Uganda's Bwindi Impenetrable Forest. A dozen yards away is one of Africa's rarest and most charismatic creatures: a mountain gorilla. But we can barely see him. Except for his piercing orange eyes, his entire body is lost in a curtain of ferns and vines and jungle shadow.

"Don't make any sudden movements," says the guide. "If he charges, don't run. Crouch down and don't look at him, or he'll think you're challenging him and get angry." I make the cough-clearing grunt the guide says keeps gorillas calm and happy.

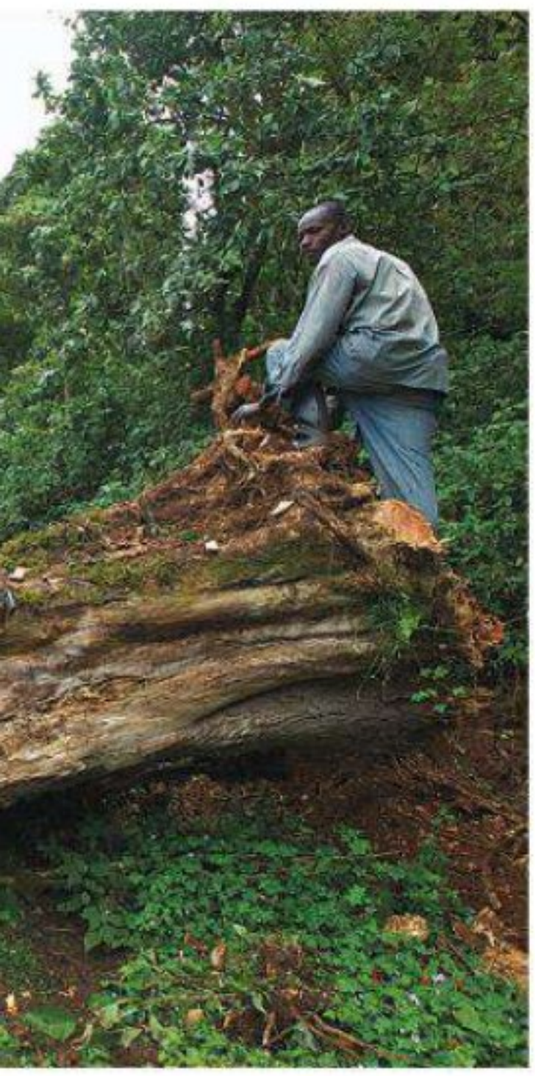
I've paid $500 for this one-day privilege. Fewer than 800 mountain gorillas survive in the wild; half are in the Virunga mountains, home of the Impenetrable Forest. Though trackers follow them to assist trekkers, you could spend hours stumbling through the forest, spotting only scat and tufts of hair.

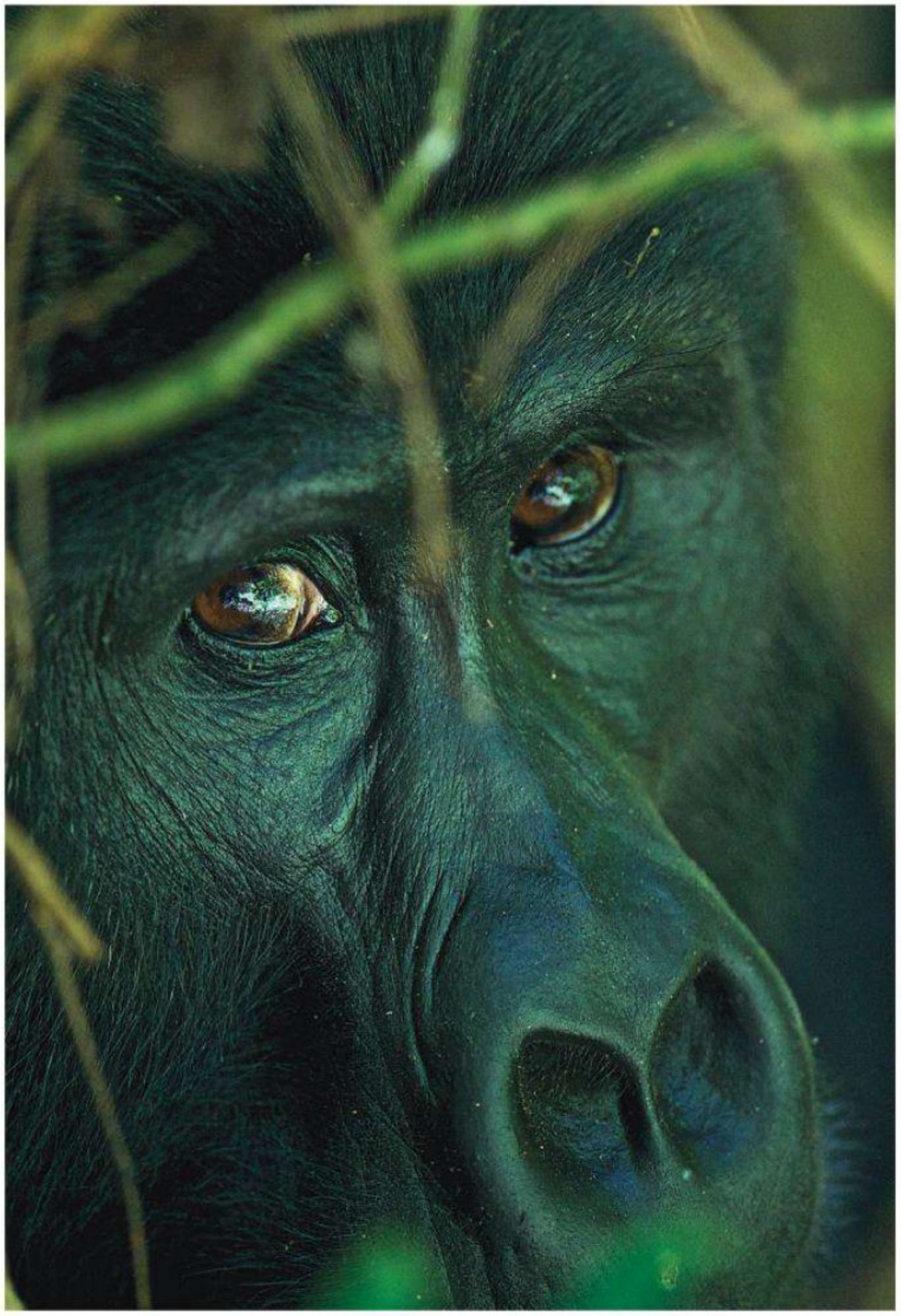
Today we are lucky. Just beyond the silverback, the bushes are shaking. We've come across a family of six, including two infants. To limit the impact of tourists on the gorillas, rangers keep actual contact to less than an hour a day. That's less time than you get to shoot a wedding.

Challenging Conditions

Nature never intended mountain gorillas and chimpanzees to be photographed. They are jet-black and spend their entire lives deep in the rainforests of central Africa.

This isn't a safari, roaming in an open Land Rover with a 600mm f/5.6. You'll crawl through stinging nettles and hike over ant nests.





CHOPPING A TREE FOR CHARCOAL, VIRUNGA NAT'L PARK
Poaching and the charcoal trade also put huge pressure on gorillas in the DRC. Unlike in neighboring Rwanda, these gorilla groups move often, so they are hard to find.

TOURISTS, NYUNGWE FOREST
Chimps are usually seen in trees, where bright sky means you have to meter for the animal and forget the background. Here, the slight over-exposure (1/50 sec at f/2.8, ISO 800) turns leaves a soft shade of green. A polarizer will cut glare, but you'll lose light. Tote a monopod for your big tele.

GORILLA, BWINDI IMPENETRA-BLE FOREST, UGANDA
A 400mm f/2.8 lens got in close and softened the vegetation (1/250 sec at f/2.8, ISO 1000). Best bets: a 70–300mm or 70–200mm f/2.8, plus a 14–24mm f/2.8 for environ-mentals.

Good boots and heavy-duty nylon pants with gaiters are a must, as are leather gloves with gauntlets; tape down wrists and ankles to keep out the stinging ants. Still, you won't see the gorillas until you're on top of them.

Did I mention that it's dark? To combat the dim light, bring a DSLR that delivers low-noise images at high ISOs. I use a Nikon D700. It's fast, rugged, and weather-sealed, but not as bulky or heavy as the pro models.

Take full advantage of the high ISOs, but don't forget to dial the sensitivity back down when you come out of the forest. I make a habit of checking ISO (I usually keep it at 200 in nice light), white balance (I like the look of 5280° K), and file type (RAW) before I start to shoot. There's nothing worse than spending all day shooting after you've left the jungle only to realize you'd left your ISO at 6400 and your white balance at 8000° K.

Fast glass—anything f/2.8 or better—might be heavier and more expensive, but it makes a world of difference here. It's not just the few extra stops of light that help with primate photography. This is the jungle. Run your eye around the edge of your viewfinder: There are probably dozens of offending branches and vines sticking into your picture. But crank the lens open to f/2.8, focus on the gorilla's face, and use the newly softened vegetation as a framing element.

Another Point of View

While everyone else is moaning about the gray skies, you can smile. The best weather condi-

CONTINUES ON PAGE 124

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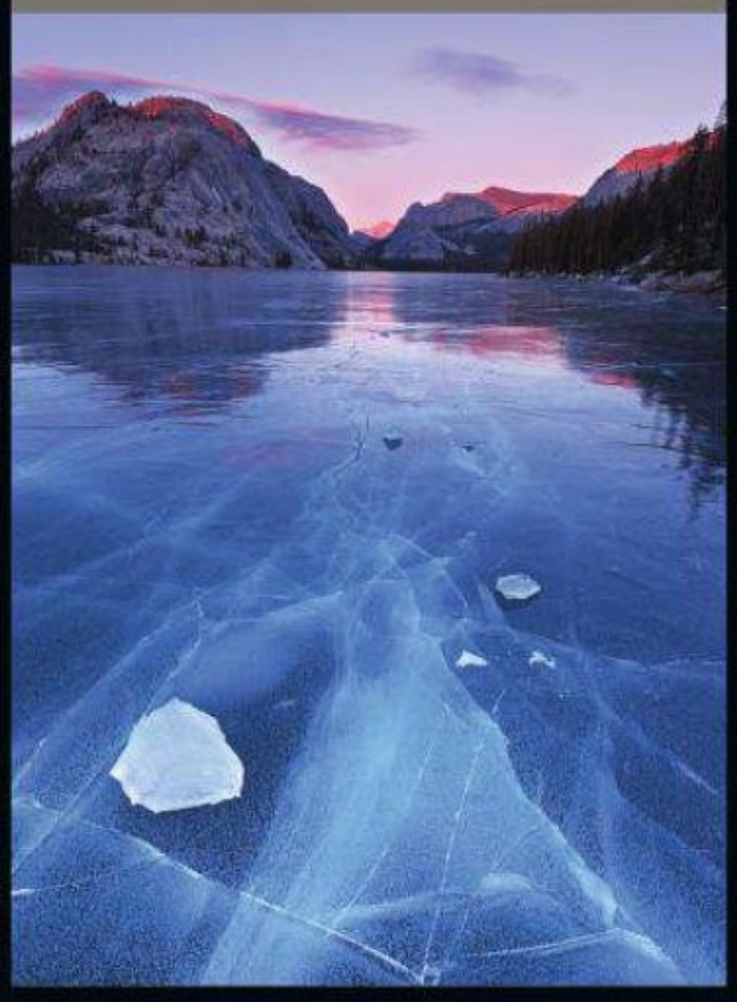
A POP PHOTO SPECIAL TEAR-OUT GUIDE

SHOOT

When the Mood Strikes

By Dan Richards

GO OUTSIDE



STAY UP LATE

STAY HOME

FROM LEFT: WILLIE HUANG; THIERRY BÉNISTANT, WWW.FLICKR.COM/PHOTOS/TITOPENTAX; FRED CAVESE

To paraphrase a certain playwright, the quality of photographic inspiration is not strained. Wherever you are (even if it's your kitchen), wherever you go (even if it's to a local park), whatever the time of day (blazing noon or the dark of night), photo ops abound. We polled our editors for ideas for finding great shots in city or country treks, or in situations with limited light, or in your own home and backyard. Then we brainstormed (mostly) simple tips for making the most of these opportunities. So clip out the these next pages, grab your gear, and get going!

Go Outside

Landscapes, seascapes, and outdoor people pictures

◀ GET VERTICAL FOR DEPTH

To increase the appearance of deep space in landscape (and other) shots, turn the camera to vertical and include an element on nearby ground—a rock, a shrub, or clump of flowers. Here, a piece of deadwood extends outside the frame, furthering the feeling of depth. And the ice chunks and fissure lines in the far left photo (facing page) do much of the same.

Checklists

7 THINGS TO BRING: Lens hoods, ziplock bags; small stand(s) for off-camera flash; remote release; bubble level; microfiber cloth; polarizer.

4 THINGS TO LEAVE HOME: Lenses with overlapping focal lengths; monster tripod; supersized backpack; laptop (just carry more cards).

3 SMARTPHONE APPS: Weather Channel; Google Goggles; Photographer's Ephemeris (sun/moon guides).

ISTOCKPHOTO.COM/JIM KRUGER

Flip your filter

You usually use split neutral-density filters with the dark portion over the sky area of a photo to reduce the dynamic range between sky and land or water. But when the bottom of the scene is the brighter part—light-colored sand or reflective water versus a deep blue sky—rotate the filter to place the dark portion of the filter there.

Carry a small umbrella

But not for rain. A compact, unlined, white photo umbrella can be used to diffuse intense overhead sunlight on flowers, plants, small creatures, etc. Support it on your shoulder for diffusion on a frontlit portrait subject or for fill on a backlit one.

HAT TRICK
A peaked cap or floppy-brimmed hat will let you shade the camera's LCD monitor for viewing in sunlight.

Think in circles

If you're photographing a particularly attractive landscape feature (stand of trees, rock

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GO MONO-CHROME IN FOG
Set exposure and contrast to drop landforms into deep shadow, as was done here. Want some tone? Set in-camera white balance to a low Kelvin number for a cyanotype effect; high K temperatures give a sepia tone.

ISTOCKPHOTO.COM/KINGWU

formation, field of flowers), or an interesting structure, don't be content with just one camera position. Walk completely around the feature (or as far around it as you can) to find alternative views, including ones that might get good light at another time of day.

Carry a compass

Or a smartphone (or other device with one), and not just to help you get your bearings. A compass helps you determine where the light will be at different times of the day: Eastern-facing features will be lit early in the day, western-facing, late in the day.

Soften harshness

In intense midday light, try these strategies: Use diffusion scrims to photograph smaller subjects; shoot in the shade; deliberately underexpose to let shadows go fully black; set up the shot and wait patiently for cloud cover. Look for natural reflectors—such as brightly lit rock faces—illuminating land features. In some cases, framing a subject tightly de-emphasizes harshness. For static scenes, high-dynamic-range (HDR) imaging techniques may be the way to go.

GRAY MATTER
Carry a microfiber lens cloth in an 18% neutral gray color to double as a gray card in the field.

HEADS UP
If your tripod doesn't have a head with a quick-release system, buy one. It will save you much grief while you shoot.

DENSIFY
An overall neutral-density filter is handy for getting shallow depth of field or longer shutter speeds in daytime shots. Stack it with a polarizer for more density.

Remove shadow noise

Get rid of noise or unwanted clutter (like grungy tree roots) in shadowed areas by shooting in RAW and (later in post) reducing the exposure in the shadow areas to black. (In Adobe Photoshop, use Levels for this.)

Stop flower fidgets

Even on "windless" days, very delicate blossoms can shake in tiny air movement. Use a reflector panel or field umbrella to block the air flow.

Use HDR for rainbows

The trouble with most rainbow photos is that they are flat: With an exposure that sets off the rainbow from the sky, landforms often lose detail. HDR can solve this by providing better overall tonality in both sky and land. But, if a rainbow is likely, you'll have to keep your camera ready for a high-speed bracketing burst. See this issue's Tech Talk (page 28) for more on bracketing.

Pack white beach towels

That way, they can do double-duty as fill-in reflectors. Bring along some clothespins or small clamps to clip them to umbrellas, fencing, whatever.

ISTOCKPHOTO.COM/NICOLAS HANSEN

BLOW OUT THE BACKGROUND
Harsh, nearly overhead sunlight? Exploit it: Turn a subject around to be backlit, and set an exposure for the face. The background will be overexposed, with suppressed detail. A large aperture will augment this effect. Add a reflector or a weak pop of fill flash for perfection.

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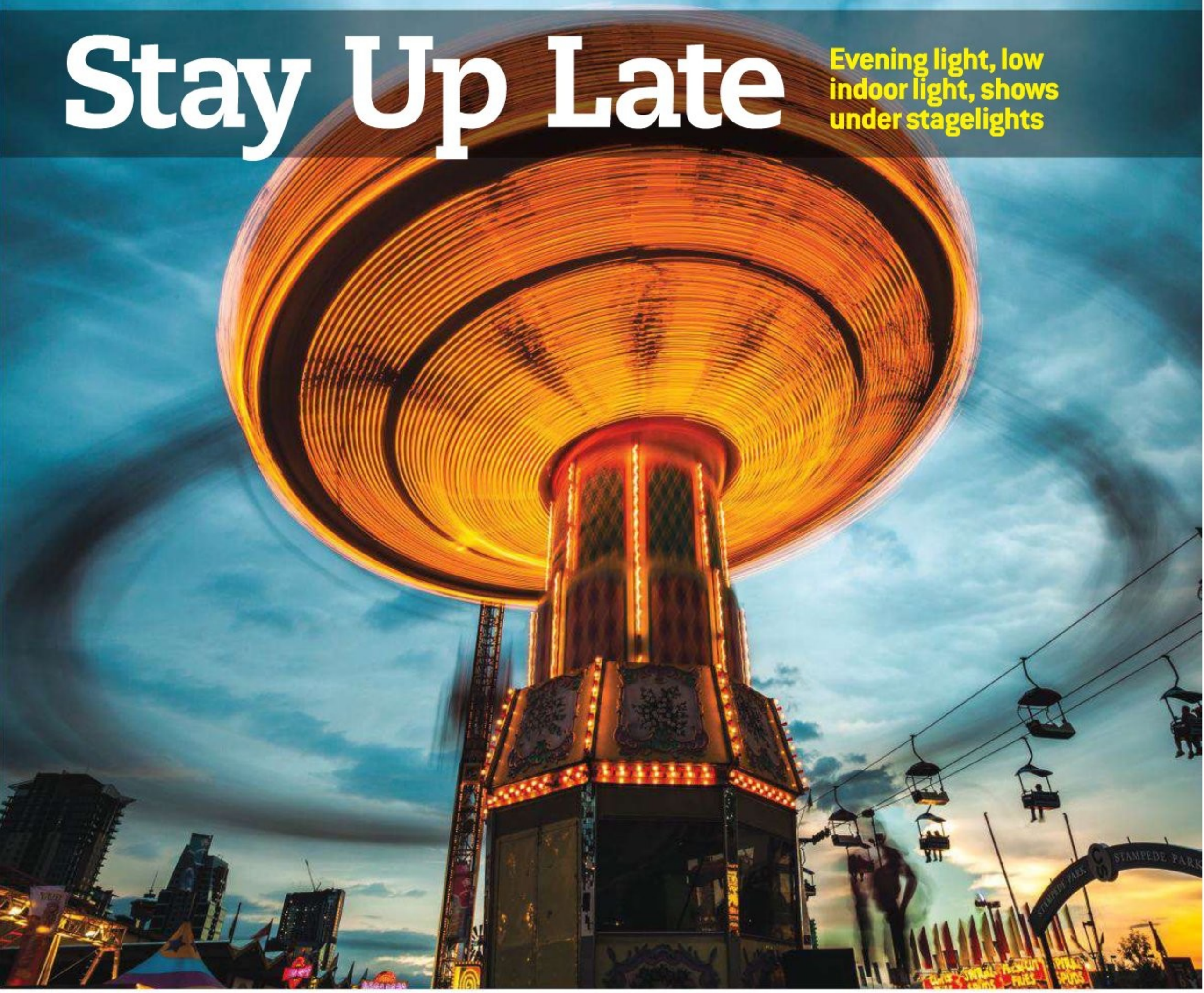
Stay Up Late

Evening light, low indoor light, shows under stagelights



PHILIPPE CLAIRO

▲ EXPLOIT THE "BLUE HOUR" It rarely lasts a half-hour, at best, so be ready to shoot as soon as the sun sets. Cityscapes, blurred amusement rides, and street fair scenes all benefit from the waning light that fills shadows just enough to keep them from dropping out to black.

De-noise concerts

Just as with landscape shooting, you can remove shadow noise and unwanted clutter (amp cables, for instance) in concert photos with an editing tweak: Use Levels or Curves to drop the exposure in shadows to black.

Go b&w for performances

The noise and crappy color in that ISO 25,600 shot still bug you

Checklists

4 WAYS TO SHOOT IN THE DARK: Compose with live view; tension your camera strap for steadiness; use a video light for stills; gel your flash to color-balance it with roomlight.

4 THINGS NOT TO DO: Blind your subjects with AF-aid lamp; insist on lower ISOs; use direct flash; or flash on all-auto.

3 SMARTPHONE APPS: Brightest Flashlight Pro (turns phone into location light); Pro HDR Camera (HDR for camera phones); Star Chart (identifies constellations).

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SHOOT THE REHEARSAL

Why wait for an actual performance or recital to photograph it? Ask the school or theater if you can come to a dress rehearsal. That way you can move around freely without disturbing an audience, and maybe get behind-the-scenes or from-the-wings shots like this one.

ISTOCKPHOTO.COM/XAVIER PIRONET

after bringing down the shadows? Convert it to monochrome. As usual, RAW capture is best, with more data in the file.

Keep stars still

In a very long exposure (hours), the earth's rotation causes stars to appear as those characteristic arcing trails. But in shorter exposures, stars and other heavenly bodies just form blurry blobs. To avoid this, crank up the ISO to keep exposures under 30 sec. Be sure to engage your camera's long-exposure noise reduction, which creates a second, "dark" exposure to subtract noise from the first. If your camera has a multiple-exposure night shooting mode (most current Sony models do), definitely engage that. You may also want to try stacking several short exposures, as Mark Kilner did for the moon shot at right. Finally, Pentax K-5 or K-r users can engage the Astrotracer function in the accessory O-GPS1 unit. This couples GPS and the camera's orientation data with the camera's image stabilization system, shifting the sensor in sync with the earth's rotation. Which is exactly how the star shot on page 58 was made.

DAY FOR NIGHT
Deliberately overexpose an evening or night scene so that it looks as bright as day. The effect can be nicely weird—like a Martian landscape.

WET IT DOWN
Asphalt at night is either flat gray or a black hole. Hosing it down (or waiting for rain) adds visual pop.

PAINT IT LIGHT
Use a flashlight or small handheld flash to "paint in" shadow areas during long exposures.

Expose slow

Don't fear slow exposures in low-light people pictures: Use a slow shutter speed (1/2 sec) for an impressionistic effect in candlelit portraits. Do the same for people dancing—try for just enough blur so that people are still recognizable as people.

Light with a phone

Use your smartphone as a light for your regular camera: The "flash" LED beam can be used to add a catchlight in the eyes, or simply as an autofocus aid. Set the LCD panel as bright as you can for use as a mini-softbox.

Nature's backdrop

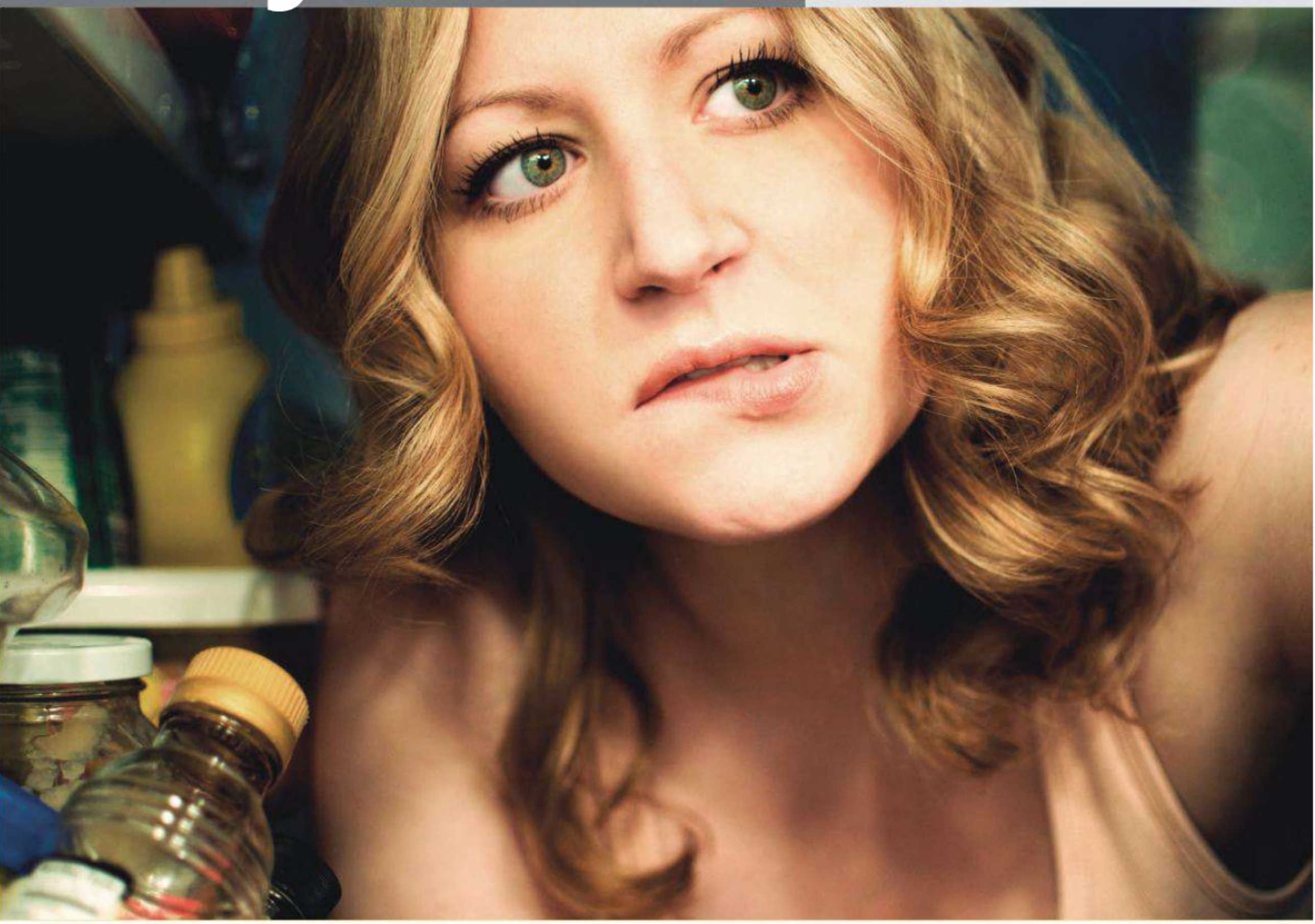
Use flash for portraits against a late-day sky: Underexpose the background for a dramatic effect. See this issue's Lighting department (page 48) for a good description of this technique.

MARK KILNER

CAPTURE "EARTHSHINE"
Earthshine is the eerie glow caused by reflection of sunlight from the earth's surface onto the shadowed area of a partial moon. It is more evident when sunlight reflects off earthly cloud cover. Search "earthshine" at science.nasa.gov for info. Exposures that work for the bright portion of the moon are usually not so good for the earthshine. Mark Kilner made this photo by stacking separate exposures; find a free guide to his technique at www.lulu.com/content/e-book/7856750.

Stay Home

Backyard flora and fauna, pool resources, fridge magnates



▲ SHOOT YOURSELF BY THE FRIDGE

For those days when you're *really* home alone too long. But don't rely on a fridge light—it's too dim. Place a flash unit inside and trigger it wirelessly. Gel the flash to complement background light.

KELLY MURPHY

Flag the window

Use black cards (also called flags, gobos, negative fill) to cover too-hot light, such as direct sunlight, coming through a window to turn it back into "window light" (i.e., soft and diffused).

Scan a still life

Simply place objects on a flatbed scanner's glass plate, and leave the lid open. This gives you an easy black background. We're told some people let their kitties sleep on the flatbed plate...

Checklists

6 ITEMS FOR HOME STUDIOS: Software for tethered shooting; small mirror for fill; gaffer's tape; collapsible reflectors/stands; toys to get kids' attention; iPad connection kit.

4 ITEMS YOU DON'T NEED: Wireless file transmitter; backdrops in garish colors; giant softboxes; color meter.

3 IPAD APPS: Snapseed (enhancement and sharing); Scott Kelby's Lighting Recipes (a pro's setups); Kevin Kubota's Lighting Notebook (app version of the book).

CAPTURE SPIDER WEB STUDIES

Backyard spider webs are common, but spiders rarely position them in the best light. So take charge by using off-camera flash or portable continuous lights feathered off to the side. If morning mist doesn't cooperate, mist the web yourself very gently using plain water—no glycerine additive, please.

ISTOCKPHOTO.COM/ALEXANDR TOVSTENKO

Pool your light

Use your swimming pool as a portrait studio: With a subject standing in the water, the reflective surface can provide deliquescent fill.

Know your birds

Stop—don't take yet another bird-feeder shot! Backyard birds will almost always return to the same tree limbs, fence perches, and the like after feeding. Observe their behavior and train your camera on that spot. Use a remote trigger, if necessary. Extra credit: Place a background—a swath of fabric, Christmas tree branches—behind the perch, using complimentary colors for the species (green for cardinals, for example). Fred Cavese, who made the photograph of the ruby-throated hummingbird on page 58, has found that these birds will let you approach quite close once they have been acclimated to your presence. In this case, Cavese was able to slowly approach the bird, getting to within a foot to get this shot with a 50mm normal lens.

SWEEP STAKE
Poke a hole in a sweep or seamless, and thread a wire armature through it to suspend items you're shooting. Slip a flower stem through it to suspend the blossom.

REGIFT A BACKDROP
White photo paper makes a good small white sweep. Cheap silver wrapping paper gives you a reflective one.

PLANT BULBS
Use CFL bulbs of the same age and color temperature throughout your home. See Tech Talk (page 28) for details.

Spread the light

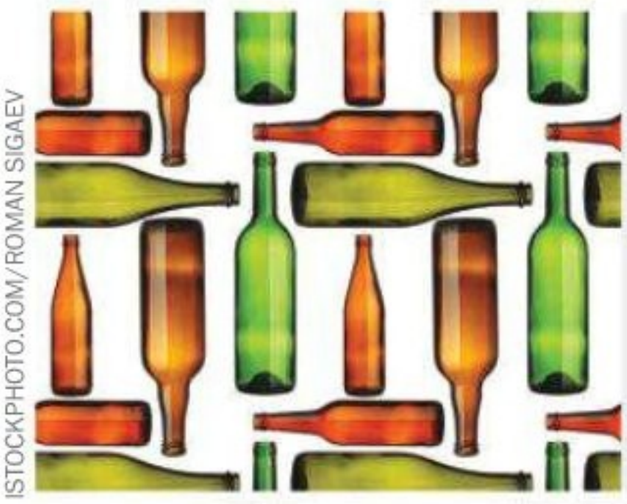
A small, white-walled room can be used as a softbox. Aim an accessory flash up at the ceiling or the back wall to provide soft lighting. Aimed into the corner of two walls and the ceiling, a flash (or lamp) on a lightstand can mimic the effect of an umbrella. But check the white balance and use a custom setting as needed—"white" paint is never quite white.

Make a photo tent

We use a simple setup like this at Pop Photo for shots of small products: Take a cardboard box with an open end, and cut windows into three of the sides around the open end. Cover these windows with white diffusion material—tissue paper or thin, white, sheet material. Set the box down with one window facing up and the other two facing to either side. Now place a sheet of poster board inside the box, bending it up opposite the open end to form a mini-sweep. You can aim flash units or hot lights into any or all of the windows, or simply place the box in sunlight.

Watch your garden grow

Photograph your flower or vegetable garden—but not just the prize specimens. Do an overview shot of the garden and of individual plants on a daily basis from the same position, and make a time-lapse sequence at the end of the season.



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Arrange small objects such as collectibles, hardware, odds and ends, or fancy buttons in a grid or other pattern on a flat surface and photograph them from directly above.

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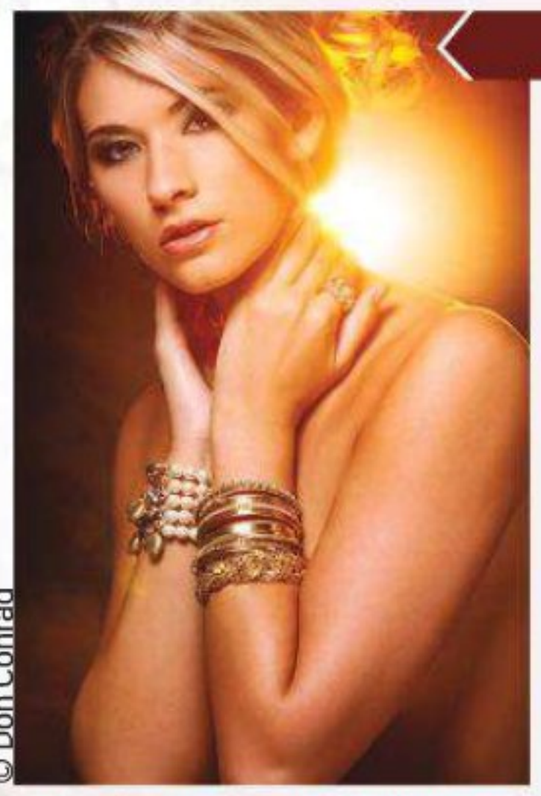

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PEAK PIROUETTE
Dave Getzschman staked out a vantage point high above the couple's first dance—the perfect perch for capturing its flourish of a finish.

DAVE GETZSCHMAN

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Wedding State of Mind

By Peter Kolonia

As the ones responsible for capturing a wedding day in images, we photographers are under a ton of pressure. To help you next time you're asked (or even hired) to assume the role, we tapped ten exciting bridal pros—all chosen by our sister magazine, *American Photo*, as the best of 2012—for their techniques and strategies for bringing a smile to the face of even the scariest bridezilla.

Welcome
TO THE
Stirling
House

THIS ISN'T ABOUT what equipment to buy to shoot weddings. (That's between you, your spouse, and your accountant.) Nor is it about conventional poses, lighting setups, shot lists, or marketing strategies. (For these, see any of the 200 wedding tutorial books you can find at bookstores and online.)

Instead, we wanted to bring you the thought processes of America's top wedding shooters as they hit the ground running to cover a typical event. What are they looking for as they go from formal family portraits, to the ceremony, to the dinner and reception? How do they (subtly) coax participants into the poses and pictures that will produce a stunning wedding album? And how do they set up the circumstances that allow them to find, mine, and even create that most important of wedding guests: human emotion.

Chasing Emotions

A set of pictures that capture the deep and true feelings between a couple getting married—and the emotions and hope that friends and family feel for them—is the holy grail of wedding photography. This, ultimately, is what we're after.

As Dave Getzschman (chrismanstudios.com), a wedding pro based in Los Angeles, puts it thusly: "Emotion is the substance of wedding photography. You can and should build images around light, color, and composition, but without emotion, there's a vital human element missing."

Getzschman, who shot the dance-floor spin on the previous spread, looks for real interactions between the couple, the wedding guests, and members of the bridal party. "These emotions reflect our humanity and translate immediately and powerfully to viewers regardless of their culture, race, ethnicity or language," he says.

How do wedding photographers find or create the conditions in which these emotions are allowed to rise to the surface in images? "I engage with my subjects and it gains their trust. I arrive early, introduce myself, learn people's names, ask questions, listen," Getzschman says. "When intimate moments occur, I want to have ingratiated myself to the point where I can stand a few feet away from my subjects with a wide-angle lens and have no one feel that I'm intruding."

For Ira Lippke (iralippke.com), whose wedding studio is in Brooklyn, NY, it's all about depressurizing the situation. For example, during a couple's formal portrait session, "I emphasize that the photography is secondary. The primary reason for pulling the couple away from their guests is for them to have some meaningful time together, just the two of them on their wedding day," he says. The couple immediately relaxes and focuses on each other, "and I get emotionally real images that way."

Angelica Glass, also of New York (photos.angelicaglass.com), offers a similar approach. When subjects are standing and see the camera, they often tense up. Some even stop breathing. "My favorite strategy is to ask them to sit. Once seated, people tend to become more relaxed and breathe normally," she says. "For shots of the bridal couple, I also ask others to leave the room. That way the couple can relax without too many sets of eyes on them."

New York-based shooter Ron Antonelli (ronantonelli.com) also takes a physical approach to posing portraits. "I remind the couple to touch one another. Whether it's holding hands or having an arm around a partner, a spontaneous moment will always seem more emotionally connected if a couple is physically connected," he advises.

Importance of Candids

While beautifully composed moments at the altar and attractively posed or semi-posed portraits are important components of a fully acomplished wedding album, the images that resonate—the ones that viewers linger over—are often the candid images that showcase memorable exchanges and implied narratives.

For Todd Laffler of Hunterdon County, NJ, (lafflerphotography.com), "Candids are king. When I'm trying to capture impactful candid

TODD LAFFLER

LAUGH OUT LOUD

Add smiles to the tears and romance.

Humor is crucial in wedding photography for at least three reasons, according to the wedding shooters we interviewed.

First, it can break the ice with your subjects—an upbeat photographer is often rewarded with real, unforced smiles from subjects.

And most weddings are studded with humorous moments. Capturing them adds crucial leavening to your wedding albums.

Finally, as Todd Laffler, who shot the tongue-in-cheek portrait above says, "It's important for me to capture fun and humorous images at a wedding because I want future clients who relate to such images. The result is I will hopefully attract other couples who like having fun."

UNWIND IN A DINER
Todd Laffler's penchant for humor helped him get this post-reception shot (top). He used a Canon EOS 5D Mark II set to ISO 1600. His lens: a 24mm f/1.4L II EF Canon.

CALM BEFORE THE STORM
Angelica Glass (lower right) suggests doing portraits early, before the couple gets caught up in the day. Here, her high camera angle throws attention on an elegant element of the bride's ensemble.

MY FLARE LADY
Using a low-tech Holga film camera for their shot at lower left, Twin Lens photographers Kitty and Craig Fritz created soft edges and plenty of flare for romance.

SKY HIGH
Profiting from high spirits—and camera angle—Todd Laffler used a 15mm Canon fisheye to include all (center left).

CLOCKWISE FROM TOP: TODD LAFFLER; ANGELICA GLASS; TWINLENSIMAGES.COM; TODD LAFFLER

moments, I think of myself as a hunter in camouflage, observing and waiting out my prey. It often takes keen observation, anticipation, and patience to capture a moment at its zenith."

He continues, "One of my favorite times for candids during a full-mass, Catholic or Episcopalian service occurs during communion. At this time, after the bride and groom have received the Host, the focus turns away from them as the rest of the congregation takes communion. This is when I find loving, intense, and intimate moments between the two. It doesn't always happen, but when it does, I can be rewarded as they happily share a private moment in the middle of the ceremony, up near the altar."

Sergio, a single-named wedding pro based in Tucson, AZ, (sergio photographer.com) carries the hunting metaphor a little further: "Real moments are the most valuable prey of all. I think of such a moment as a mouse. I need to set a trap of light and composition, and then be patient. You don't chase a mouse with a mouse trap; you set the bait and wait."

The best candid pictures capture a moment, but they also imply a story or define the relationships among families and friends. "I don't find it the least bit satisfying to make pretty, one-dimensional wedding pictures," says Getzschman. "I challenge myself to make multidimensional images that suggest a context, convey a narrative, and offer insight into the relationships between my subjects."

The Truth About Shot Lists

Even wedding warriors who deny it have a shot list imprinted somewhere along their strands of DNA. Their trick is to approach each wedding milestone (procession, vows, first kiss, recession, reception toasts, first dance, etc.) with a fresh eye.

For example, Laffler likes to "photograph the bride and groom entering the ballroom for the first time from behind with a wide-angle lens. This way, we can see all their guests' reactions to them coming in."

Of course, he can only do this if he has a second photographer working for him to cover the more typical vantage point, in front of the bride and groom.

Ron Antonelli agrees that one way to get creative with the usual wedding scenes is to capture them from unusual vantage points. "We sometimes mount a remote camera with a wide-angle lens to the *chuppah* [bridal canopy] during a Jewish ceremony and hide it so it can't be seen. I fire the camera from anywhere, making photos that otherwise would have been impossible. It's fun later on when our clients react on first seeing the shots. They had no idea we had taken them!"

Lippke also champions unusual points of view: "I love to shoot the first dance, for example, while crouching at the edge of the dance floor," he says. "I position myself so that the couple are naturally backlit by the perimeter flood lights."

Composition Counts

Jeff Newsom of San Luis Obispo, CA, (jeffnewsom.com) finds that careful lens selection and composition can add interest to a wedding scene that on the surface may appear bland. "I explore a lot at every wedding I shoot," he says. "I've found over time that I favor getting closer with a wider lens than standing back with a telephoto. It gives me a natural sense of being close to the subject."

This technique gives him a chance to showcase a bride, say, by separating her from the background through defocus or by using a low camera angle to eliminate background clutter. He also prefers strong backlighting to wash out a background.

Seeing the *Mise en Scene*

Given how much couples (or their parents) usually spend on lighting, flowers, food, music, and all the other expenditures that make up a wedding, the photographer can't neglect them. You should always capture the venue in wide, establishing shots; get close-ups of table settings, floral arrangements, and the bride's gown, as well as other macro views.

Ira Lippke approaches the big picture the way a landscape photographer would. "I love landscapes," he says. "The wide establishing shots of the wed-

CONTINUES ON PAGE 126

MIRROR IMAGE Susan Stripling of Brooklyn and Philadelphia (susan stripling.com) created a great reflection (top) by pushing a glass-topped table into the foreground. She used a Nikon D3s and 24–70mm f/2.8 Nikkor zoom.

FIT STYLE TO THE COUPLE Jeff Newsom used an unusual pose and lighting (bottom right) to bring out this bride's unconventional side.

ETHEREAL LIGHT By backlighting and overexposing his shot by 2 full stops, Ira Lippke created a pristine glow for this aspen-grove portrait (bottom left).

A JOYEOUS ROMP Photographer Sergio gulped when it started to rain (center left), but the wedding party didn't let it dampen their spirits. The lesson: Always follow the action wherever it leads you.

RON ANTONELLI

THE SIDEMAN OPTION

Learn the ropes at a wedding studio.

Photographers Ron Antonelli and Dave Getzschman both freelance for busy wedding studios. They claim that being a "sideman," as the role is sometimes called, is a great way to learn the business. Antonelli says his boss "has become a great mentor to me, allowing me to work creatively in my own style, while teaching me the ins and outs of being a wedding photographer."

CLOCKWISE FROM TOP: SUSAN STRIPLING; JEFF NEWSOM; IRA LIPPKE; SERGIO

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INTRODUCING!

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PopPhoto Poses with Lindsay Adler is the essential posing guide for photographers looking to add creative and unique posing options for their clients.

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Back
Popular Photo Poses with Lindsay Adler
Dip and Kiss
Lens 85 mm 1.4
Aperture f/2.2
ShutterSpeed 1/500 sec
Focus Length 85 mm
ISO 200
Prompts and Tips
Lighting and Setup
Effects
Bride and Groom are facing each other, his front arm at his side, his back arm reach
supporting her. Groom is leaning in to kiss the Bride, who is leaning back (in a dip
arm hangs straight at the shoulder, holding her bouquet. A low camera angle helps
look taller and more slender.
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Lindsay Adler is a portrait and fashion photographer based in NY. Her images have appeared in dozens of publications internationally. Lindsay has authored two photography books and teaches thousands of photographers annually how to improve their vision and craft.

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LAB

AUTHORITATIVE TESTS, REVIEWS, AND BUYING ADVICE

FUJIFILM X-PRO1 & ZEISS DISTAGON T* 15MM F/2.8 82

SAMSUNG 18–55MM F/3.5–5.6 86

92

DSLR TEST

MASTERFUL

Nikon's pro-level speed shooter just keeps getting better

IT'S BEEN more than three years since Nikon set the D3s loose on the world. In that time, we've used one as a test body for numerous lens tests and have captured countless images that left us wondering what Nikon could do next with this line of cameras.

Nikon's response, the D4 ($6,000, street, body only), refines the D3s's still image capabilities while adding state-of-the-art video capture with options to satisfy both casual and professional videographers. The sensitivity range has been

SATOSHI

NIKON D4

16.2MP FX format (full-frame) CMOS sensor
1920x1080p30 video capture
Sensitivity up to ISO 204,800
Uncompressed video output through HDMI
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PHILIP RYAN (LCD IMAGE)

expanded by 1 stop at both the top and bottom of the scale, matching the versatility offered by Canon's 18.1MP EOS-1D X ($6,799, street, body only). Both cameras have full-frame sensors and represent the sturdiest workhorses of the photo world. If you shoot in the most extreme conditions, you'll likely use either the Nikon D4, its competitor, or one of their predecessors.

How did this new Nikon tank fare in our tests? Read on.

In the Test Lab

With 4.1MP more than the D3s, the 16.2MP D4 showed just enough resolution to earn it an Excellent rating in overall image quality. Moreover, while keeping noise to a Low or better rating, it held enough resolution to maintain that image quality rating from its lowest sensitivity setting of ISO 50 up through ISO 800. To compare, the D3s earned an Extremely High rating from its base of ISO 100 through 800, while Canon's older EOS-1D Mark IV scored Extremely High from ISO 50 through 1600.

Resolution is the main factor in our image quality ratings, though the difference between the D4 and 1D Mark IV is not that large: They fall on either side of our threshold of 2500 lines for an Excellent rating. The D4 captured 2530 lines per picture height at ISO 50 and didn't drop below it until ISO 1600; the 1D Mark IV fell just barely short of an Excellent rating with 2490 lines at ISO 50. Meanwhile, Nikon's D3s managed to resolve 2330 lines at ISO 100. (To its credit, that's quite a good score, considering that it has only a 12.1MP sensor.)

NIKON D4

WHAT'S HOT

Excellent image quality to ISO 800.

WHAT'S NOT

XQD card required for dual-slot shooting.

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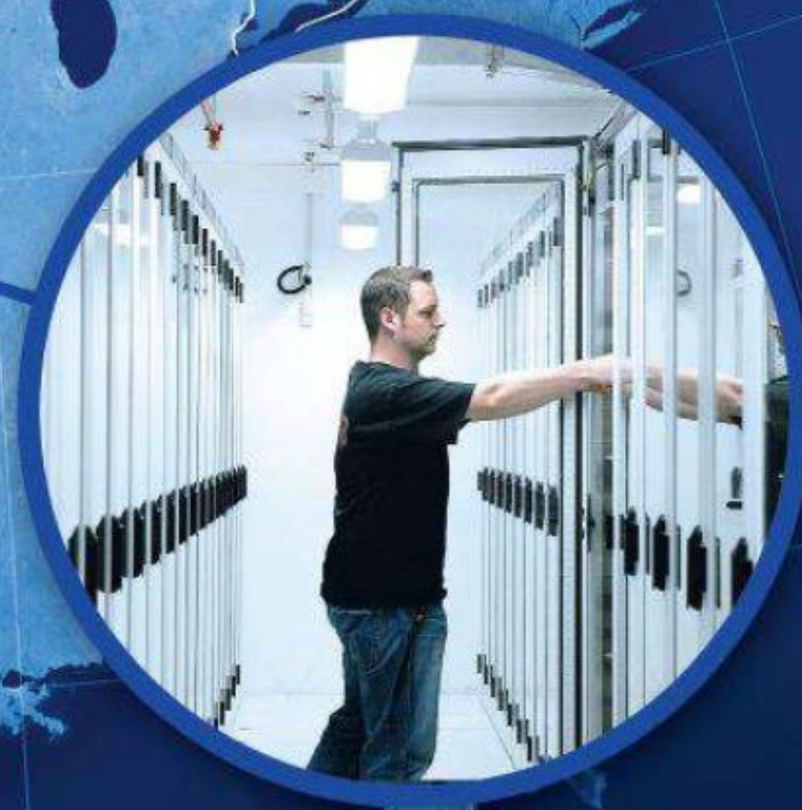

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We were impressed to see that the D4 held enough resolution to keep an Extremely High rating all the way up to ISO 12,800, where it churned out 2360 lines. From there, resolution drops precipitously to 2200 lines at ISO 25,600, to 2070 lines at ISO 51,200, to 2000 lines at ISO 102,400, and 1810 lines at ISO 204,800. But considering that many compact cameras can't deliver more than 1800 lines at all, this level of performance is mighty fine indeed.

The D4 easily earned an Excellent rating for color accuracy. In our test, it showed an average Delta E of 7.0—well under our cutoff of 8.0 for top honors. This is no surprise, as most interchangeable-lens cameras we test earn Excellent scores here. Indeed, the D3s scored an even better 6.2, while the Canon 1D Mark IV scored a 6.6.

We can't assume an Excellent rating all the time, though—Fujifilm's X-Pro1 (see page 82), with its very new approach to color filter arrays, scored 9.3. Keep in mind that most films had average Delta Es of more than 10, and many reversal films would score 13 or higher in this test. In digital, where you can choose a color palette based on your vision for a photo, the ability to reproduce colors accurately merely provides you a better starting point, even when you don't necessarily want a perfectly true representation of color.

Noise results show that the D4 isn't as clean an imager as the D3s was at the lowest ISOs. But it remains in acceptable territory for one extra stop at the high end, making ISO 6400 more usable than ever for this class of Nikon shooters. All shared sensitivities higher than ISO 400 showed less noise than the D3s. But ISO 204,800 (Hi4 in Nikon's lingo) is still quite noisy, with one of the highest noise scores we've seen in quite some time. Of course, we did not expect images at this high an ISO to be very clean, and if it's

Like most DSLRs, the D4 will let you select a numerical Kelvin temperature setting for white balance, but unlike most, you can make your selection in increments as small as 10 degrees.

Video features and still-image quality combine to make the D4 practically irresistible.

TEST RESULTS

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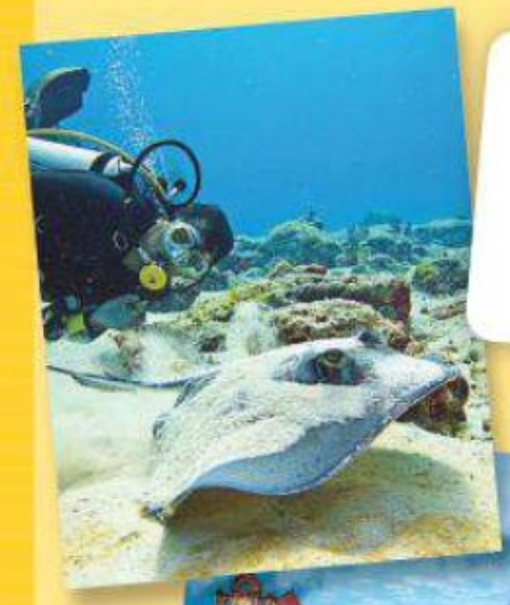

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the difference between getting a shot or not, we're happy to see that it is an option.

In the Field

Like all cameras in this class, the D4 is built to withstand abuse. Its magnesium-alloy body is weather-sealed and riddled with buttons so that all essential settings can be changed quickly. Some of those buttons, such as the ones for zooming in or out during playback, have been moved around, so veteran Nikonians should make an effort to acquaint themselves with the camera's layout before using the D4 for a critical shoot.

The body also has a couple of firsts for Nikon. One is the XQD card slot—the first in any camera. This fledgling memory card format is poised to succeed the CompactFlash card (the D4 has a CF slot, too). Currently available only from Sony, the XQD cards we used performed flawlessly in our field tests. We became enamored of their rugged feel and their satisfying click when inserted into the camera or Sony's MRW-E80 XQD reader ($45, street).

But if you use dual slots, prepare to spend big. Street prices are still high for XQD cards ($130 for 16GB, or $230 for 32GB), and very large-capacity cards don't exist yet. As this changes over time—if the card format finds its way into more camera bodies—we look forward to more XQD.

The D4's other new feature, an Ethernet port, will be of more importance to photographers who tether to a computer. Since Ethernet is a standard format, it also opens the door for third-party accessories that may not have been otherwise possible.

The new AF system in the D4 boasts 51 selectable points, but it's worth noting that 15 of them are cross-type and work with lenses with f/5.6 or faster maximum apertures; the center cross-type will work with f/8 lenses.

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BURST RATE: Full-sized JPEGs (Fine mode), up to 170 shots at 10 fps; RAW, up to 69 shots at 10 fps (14-bit uncompressed); TIFF, up to 55 shots at 10 fps.

AF SYSTEM: TTL phase-detection with 51 illuminated focus points (15 cross-type sensitive to f/5.6, single center sensitive to f/8); single-shot, continuous, 3D Focus tracking; tested sensitivity down to EV –2 (at ISO 100, f/1.4); AF points can be grouped and selected by area.

LIVE VIEW: Full-time contrast detection, or single-shot phase-detection AF with mirror interrupting view momentarily.

SHUTTER SPEEDS: 1/8000 to 30 sec, plus B (1/3-EV increments); shutter life rated to 400,000 cycles; flash sync to 1/250 second.

METERING: TTL metering using 91,000-pixel RGB sensor; Matrix (evaluative), centerweighted (75% weight given to 4.5% circle in center of frame), and spot (approx. 1.5% of finder at center); range, –1 to 20 EV (at ISO 100).

ISO RANGE: ISO 100–12800 (in 1- or 1/3-EV steps), expandable to ISO 50–204,800.

VIEWFINDER: Fixed eye-level pentaprism.

LCD: Fixed 3.2-in. TFT with 921,000-dot resolution, five-step brightness adjustment.

OUTPUT: Hi-Speed USB 2.0, mini-HDMI video, and stereo headphone minijack.

BATTERY: Rechargeable EN-EL18 Li-ion; CIPA rating, 2,600 shots with optical viewfinder.

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the power behind the picture

The D4's new 51-point autofocus system proved very quick and sure in both our lab and field tests, focusing in less than a second all the way down to moonlit darkness of –1 EV. At –2 EV, it focused in an impressive 1.1 sec. That's a little slower than the D3s, but still quite fast. Furthermore, Nikon's 3D focus tracking performed like a champ, keeping up well with the camera's 10-frame-per-second burst rate. If your shooting situation lets you lock exposure and focus, the camera can capture 11 frames per second.

The D4's most notable upgrades are for video: This is the first DSLR to allow an uncompressed video feed. You do this by setting the camera's HDMI output to leave out the usual overlaid info. We were unable to obtain a video recording device for our test, but live footage viewed on an HDTV looked wonderful. Plus, video footage captured to memory cards in the compressed formats looked as good as any we've seen from a DSLR yet.

For info on how we test DSLRs, go to PopPhoto.com/reviews.

The camera also offers a headphone-out for monitoring audio, along with audio-level controls. And, although cinematic 24-fps diehards won't care, for those who prefer a more videocentric spec, the D4 can capture at 30 fps as well.

Bottom Line

Whenever a new piece of top-level gear comes along, there's a rush by many pros (and more than a few amateurs) to get it right away. While the D4 does outshine its predecessor in many ways, we would not call it an essential upgrade for still shooters who already have a D3s. If more resolving power or the 1-stop improvement in noise control mean a lot to you, then it could make sense to upgrade from your D3s. But, if the D3s's ultra-clean low-ISO images matter more to you, then it might not make sense to move to the D4.

Videographers, however, should definitely consider the D4. Besides the uncompressed output and all the audio extras, the camera's noise control should allow for appreciably more versatile shooting with video.

Shooters who split time between stills and video might have a harder time figuring out whether to upgrade. We think that the versatility of the video options should be enough to warrant the step up. But, if you need more reason, the video features and the advances in the still-image quality combine to make the D4 practically irresistable.

In any case, the D4 proves that as amazing as cameras have become, they can—and will—get better still.

—Philip Ryan

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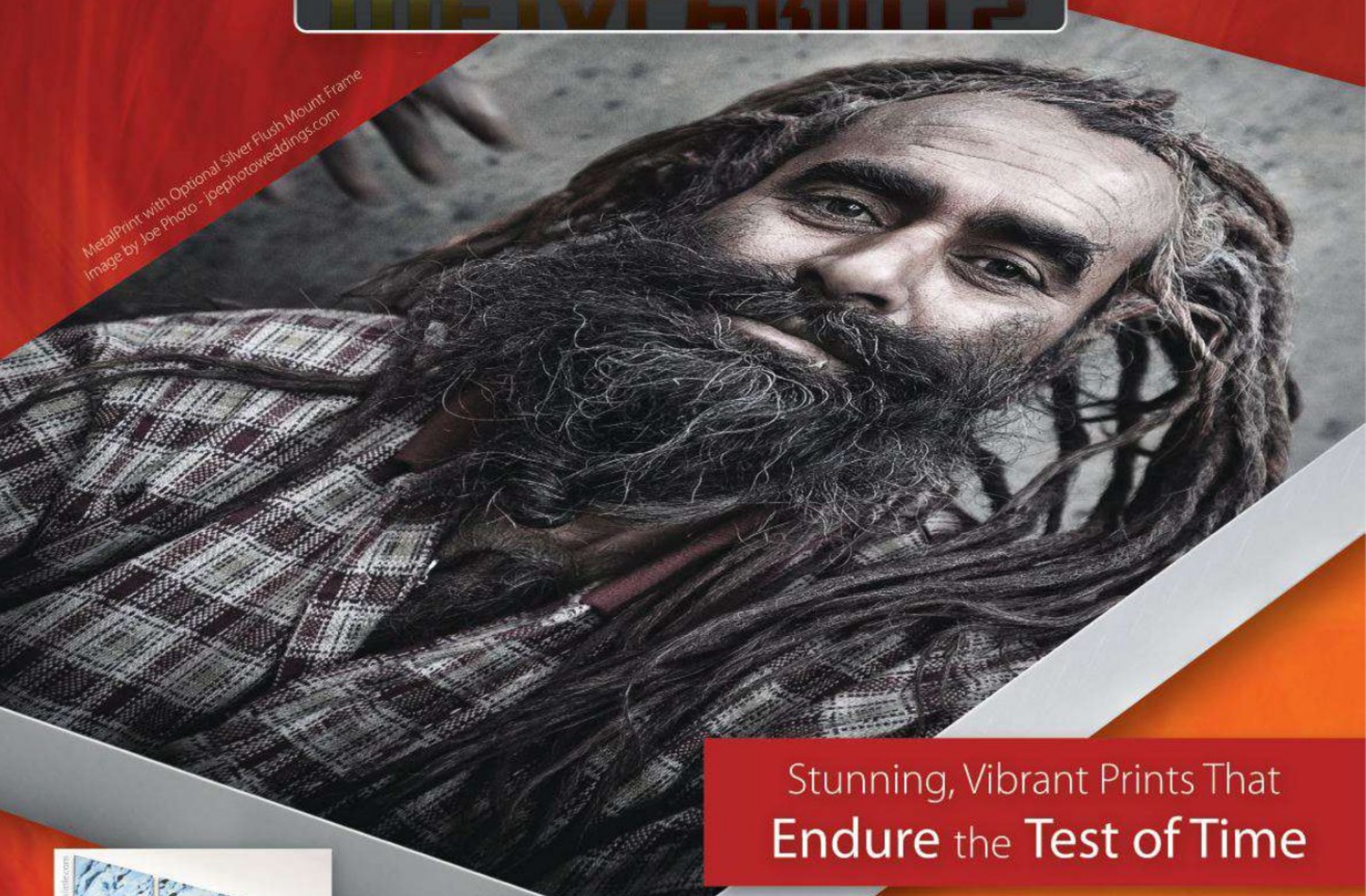

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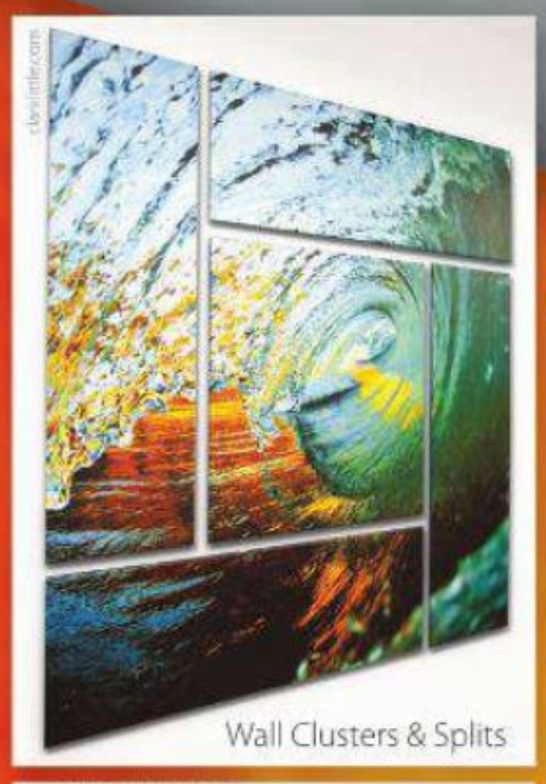

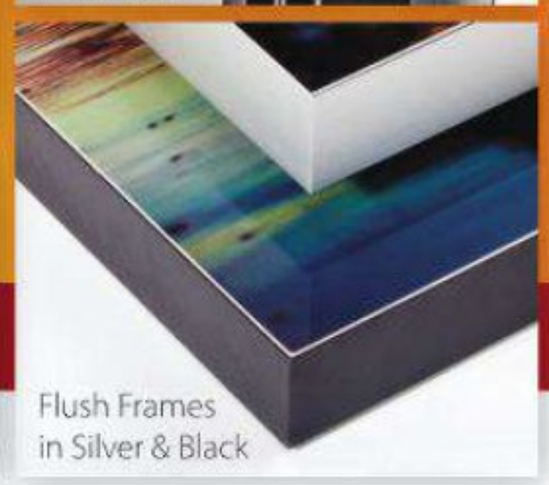

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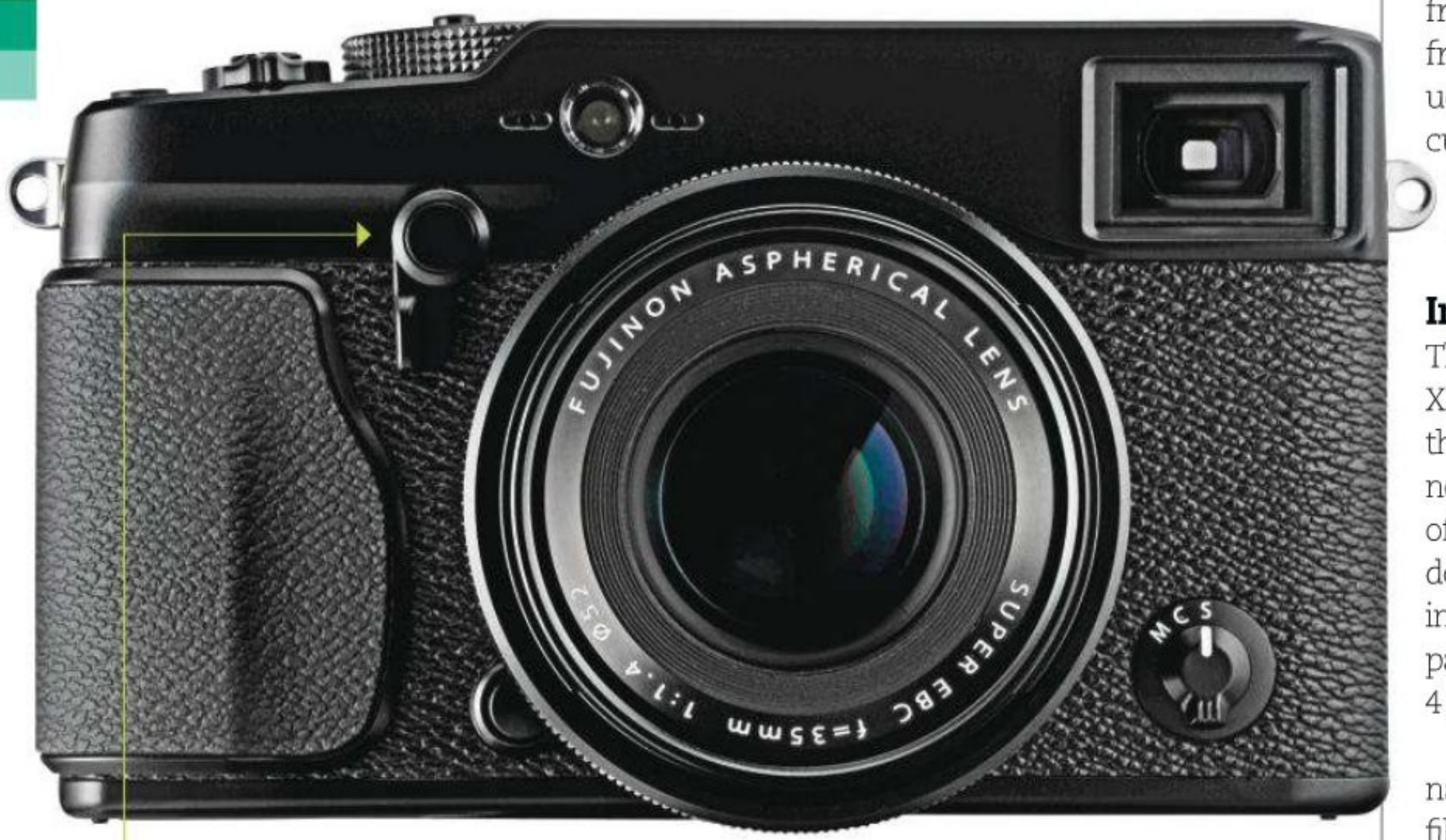

Optical/electronic viewfinder switch

Quick-menu button

IF THERE WERE a Drool Index for cameras, the Fujifilm X-Pro1 ($1,699, street, body only) would have been atop the list since its announcement back in January. Here was a new interchangeable-lens compact (ILC) that looked remarkably like an M-series Leica, right down to the bright-frame viewfinder. That it came from Fujifilm, whose discontinued S-series DSLRs still enjoy cult status, was icing on the cake.

Now we can finally see if the craving was warranted.

In the Test Lab

The big news is the X-Pro1's 16.3MP X-Trans sensor, which eschews the Bayer array of pixels—used in nearly all DSLR sensors—in favor of what Fujifilm calls a "more randomized" pattern. It has 36 pixels in a square before repeating the pattern; a typical Bayer sensor has 4 pixels in each repeating square.

Fujifilm claims this design eliminates the need for the low-pass filter that's sandwiched with most Bayer-array sensors to prevent moiré patterns in image detail (see page 38). With no low-pass filter, the reasoning goes, the X-Trans chip can deliver more resolution.

In our lab tests, the X-Pro1 did prove a sharp imager, delivering an average of 2400 lines per picture height for an Extremely High rating. But this falls short of other ILCs with similar pixel counts. The 16MP sensor in both the Panasonic Lumix GX1 and G3, for example, scored over 2500 lines for Excellent ratings—using Four Thirds sensors with physically smaller dimensions

FUJIFILM X-PRO1
WHAT'S HOT
Sharp imaging, clearcut controls.
WHAT'S NOT
Focus issues in both manual and AF.
WHO IT'S FOR
Well-heeled enthusiasts who want the best of old and new photo experiences.

DAN RICHARDS (LCD IMAGE)

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than the X-Pro1's APS-C-sized X-Trans sensor.

But there is more going on here. Our resolution numbers are the average of horizontal, vertical, and diagonal line readings. The X-Pro1's horizontal and vertical results ran a little over 2200 lines, while the diagonals scored much higher—2800 and 2400. So there is room for refinement in this sensor.

In color accuracy, it scored an Extremely High rating with an average Delta E of 9.3. While good, it's no great shakes these days, when even point-and-shoots routinely hit the Excellent mark.

The X-Pro1 kept noise within acceptable limits up to ISO 6400, where it slid into Unacceptable range. Applying a little more noise reduction in the Silkypix RAW converter bundled with the camera brings this to acceptable levels; the camera holds onto resolution up the ISO scale. It got an impressive 2310 lines at ISO 6400, and at its top ISO of 25,600, it gets 2200.

Overall image quality ended up Very High at ISO 100 to 200. (With a slightly better color accuracy score, under 8.0, it would've won a solid Extremely High rating.)

With the camera set to manual focus, a press of the AE/AF lock button will autofocus the lens.

ISO is the one frequently used setting that doesn't get its own switch, but it can be assigned to the Fn button on the top.

In the Field

The X-Pro1 body has surprising heft, and its dimensions stretch the definition of the term "compact," which makes handling comfortable and secure.

The exposure-compensation dial and frequently-used back buttons are within easy thumb reach. The single command wheel is nearly superfluous; among its few functions are option selection in the quick menu and scrolling through pictures in playback.

Exposure controls are logical. Set either the shutter-speed dial or the lens aperture ring to A, and you get priority autoexposure for whatever you've set on the other control. Set both to A, and you get program AE, shiftable with a left or right press on the four-way controller on the back. Take both off A, and you can set exposure manually; the exposure scale is visible in the optical and electronic viewfinder.

You read that right: The X-Pro1's viewfinder can switch between a traditional bright-frame optical finder (with superimposed readouts) and an EVF. A 1.44-million-dot LCD, this is so fine-grained and lifelike that several of our editors at first didn't believe it was an EVF.

Unlike the OLED finder in Sony's NEX-7, however, this EVF doesn't redraw very quickly. During a fast pan, the finder image judders, and during a burst, it freezes. Use the optical finder in these situations, or when capturing the fleeting expressions of a child or pet.

We also like the optical finder for an old rangefinder trick: You can see what's outside the bright frame, letting you precisely time when something moves into it. It also changes magnification when

Further evidence the ILC concept is gaining critical mass

TEST RESULTS

IMAGE QUALITY — ISO 100*
VERY HIGH
POOR — EXCELLENT

RESOLUTION — ISO 200
2400 EXTREMELY HIGH
1500 2000 2500 3000 3500 4000
POOR — EXCELLENT

COLOR ACCURACY
EXTREMELY HIGH 9.3
HIGH — EXCELLENT

NOISE — AT ISO

LOW 1.6	100*
LOW 1.8	200
MODERATELY LOW 2.1	400
MODERATE 2.6	800
MODERATELY LOW 2.1	1600
MODERATE 2.7	3200
◀ UNACCEPTABLE 3.4	6400
◀ UNACCEPTABLE 3.8	12800*
◀ UNACCEPTABLE 4.6	25600*

3.0 2.5 2.0 1.5 1.0 0.5
UNACCEPTABLE — EXTREMELY LOW

HIGHLIGHT/SHADOW DETAIL
HIGH
LOW — EXTREMELY HIGH

CONTRAST
HIGH
LOW — EXTREMELY HIGH

*BASED ON JPEG FILES

you switch lenses. (So far, lenses are limited to three fast primes: 18mm, 35mm, and 60mm macro. See the sidebar below for details.)

Autofocus speed is midpack by ILC standards—slower than a typical DSLR, yet not sluggish. It tends to hunt, particularly when moving from far to near subjects or vice versa. You can engage an AF assist lamp, which will dazzle (or annoy) portrait subjects. In bright light, continuous AF tracked moving subjects pretty well, but in video mode it was dicey.

Manual focusing was less than satisfying. While the lenses' electronic focusing rings have lovely smoothness and damping, they have way too much travel from near to far focus.

With either viewfinder, an inward press on the command wheel enlarges the center portion of the frame to aid focusing. A scale readout below the frame shows distance as well as the zone of depth of field; we would happily trade this for focus confirmation.

Among the many shooting features are panorama mode (via a single slow pan), double exposure, photobook assist, and—truly useful—dynamic-range adjustment, which lets you expand the contrast range captured.

Operation is so straightforward that its few quirks stand out. Selecting viewfinder mode (you have five choices) can be a puzzle, involving both a selector button on the back and an unmarked lever on the front. And the camera captures only JPEGs (no RAW files) at ISO 100, 12,800, or 25,600.

The Bottom Line

The Fujifilm X-Pro1 will appeal chiefly to enthusiastic (and affluent) amateurs, as well as to pros seeking an alternative shooting experience—people for whom pride of ownership is a factor.

This may help mitigate its shortcomings: slower autofocus than a DSLR, clunky manual focusing more like a compact's than a true rangefinder's, and an EVF that can't keep up with fast action. The limited lens selection is also a drawback, though Fujifilm will surely fill out the line.

The X-Pro1's main rival is the Sony NEX-7, offering higher imaging performance for $500 less (body only) with a bigger lens line, a lighter and smaller body, and a more responsive EVF. Your choice may come down to control style: Fujifilm's traditional dial-and-ring design versus Sony's innovative triple command wheels.

The X-Pro1 is further evidence that the ILC concept is gaining critical mass. And it's good to see Fujifilm once again making high-quality cameras with interchangeable optics. *—Dan Richards*

While noise numbers were Unacceptable at ISO 12,800 and 25,600, photos taken at these speeds are definitely usable, particularly if converted to monochrome.

The X-Pro1's JPEG profiles are called film simulation: You can set Provia, Velvia, Astia, and two types of Pro Neg.

SPECIFICATIONS

IMAGING: 16.3MP effective APS-C-sized X-Trans CMOS sensor captures images at 4896x3624 pixels each, with 12 bits/color in RAW capture.

STORAGE: SD, SDHC, or SDXC stores JPEG, RAF RAW, RAW + JPEG, or H.264 MOV files.

VIDEO: Up to 1920x1080p24; built-in stereo mic; continuous contrast AF.

BURST RATE: Up to 21 full-sized JPEGs at 6 frames per sec or to card capacity at 3 fps; RAW up to 14 frames at 6 fps or 3 fps (tested).

AF SYSTEM: TTL contrast detection with 49-area autoselect or user selectable; manual focus.

SHUTTER SPEEDS: 1/4,000 to 30 sec, plus B (1/3-EV increments).

METERING: TTL metering with 256-area evaluative, centerweighted average, and spot (approximately 2% of screen).

ISO RANGE: ISO 200–6400 (in 1/3-EV increments); ISO 100, 12,800 and 25,600 with JPEG capture only.

FLASH: No built-in unit. Hotshoe supports TTL autoflash with Fujifilm EF-20, EF-X20, or EF42 accessory flashes. Flash sync to 1/180 sec. PC terminal.

VIEWFINDER: Hybrid finder switchable between 0.47-inch, 1.44-million dot LCD electronic viewfinder and reverse Galilean optical viewfinder with parallax-compensating electronic bright frame overlay and variable magnification according to lens mounted.

MONITOR: Fixed 3-inch 1.23-million-dot LCD.

OUTPUT: Hi-speed USB 2.0; mini-HDMI video.

BATTERY: Rechargeable NP-W126 Li-ion, CIPA rating 300 shots.

SIZE/WEIGHT: 5.5x3.2x1.7 in.; 1.0 lb with card and battery.

STREET PRICE: $1,699, body only.

INFO: fujifilm.com

Tri Focals

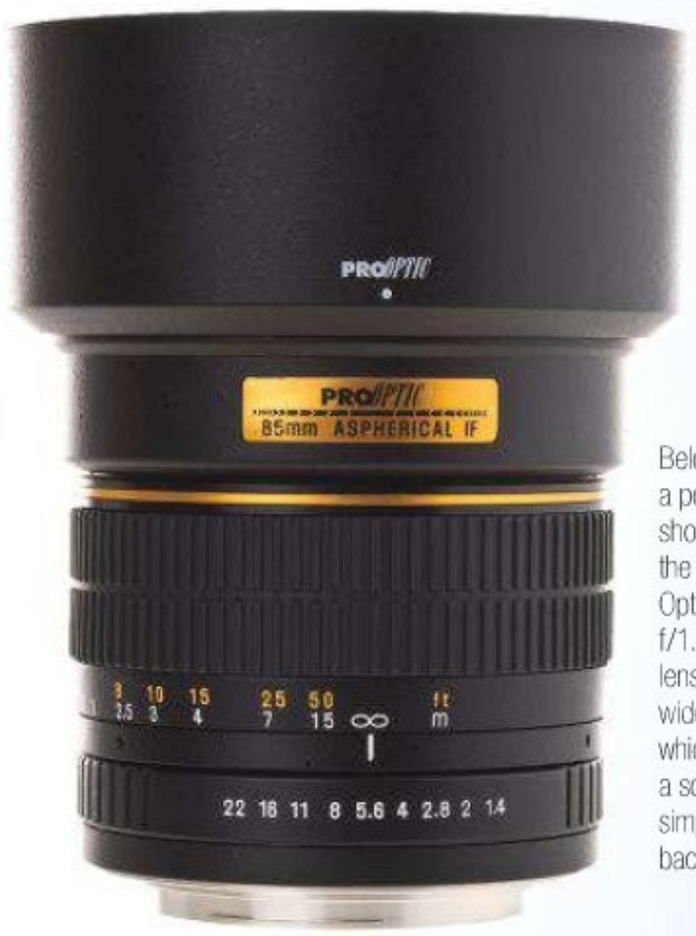
FUJIFILM'S XF LENS line debuts with three aspheric-element optics: an 18mm f/2, 35mm f/1.4, and 60mm f/2.4. Full-frame equivalents work out to 27mm, 52.5mm, and 90mm—a classic rangefinder kit. And while we thoroughly enjoyed the single-focal-length experience, it also made us realize how much we've come to rely on zooms for precise framing. Fujifilm promises an 18–72mm (27–108mm equivalent) f/4 image-stabilized zoom as well as a 14mm (21mm equivalent) f/2.8 lens later this year, and still more in 2013.

We had production samples of the 18mm and 35mm, and, while we could not perform our usual SQF tests due to lack of a mount for our optical bench (one is in the works), we did perform DxO Analyzer 4.1 tests on them. If the SQF is anything like these test results, these are killer lenses. The two optics showed only Imperceptible barrel distortion—the 35mm, 0.08%, and the 18mm even less, 0.06%. Performance in light falloff was, in a word, outstanding: Neither lens showed any vignetting—at any aperture. Bravo. *—D.R*

LENS REPORT

GLASS ACT

PRO OPTIC 85mm f/1.4 ASPH



Below, a portrait shot with the Pro Optic 85mm f/1.4 ASPH lens set wide-open, which created a soft, simplified background

If you think you can't afford the fast optics needed for soft portrait backgrounds, this lens will change your mind. By Marvin Good

Who doesn't love the soft, out-of-focus background in a great head-and-shoulders portrait? The shallow depth of field needed to create the effect dramatically isolates subjects from their environment, blurring distant detail to make it less distracting.

Yet soft backgrounds come at a price, literally. "Portrait" lenses —moderate telephotos with wide maximum apertures—are expensive because their glass elements must be wider too. It's tempting to splurge, because with an all-purpose zoom set to moderate-tele, the maximum aperture is too small to smooth out the background.

Now budget-conscious photographers can have it both ways. The Pro Optic 85mm f/1.4 ASPH is a high-quality portrait lens that produces a soft, creamy defocus, yet costs a fraction of your DSLR system's equivalent. This fast prime lens has a nine-element optical formula that incorporates state-of-the-art aspheric design.

The Pro Optic's cost is also kept reasonable by eliminating autofocus. Is that a drawback? Not for the close portraits this lens excels at. Many photographers actually turn off their AF system to keep the focus point from shifting every time they take another shot. Manual focus means that once focus is set, you can concentrate on the subject's expression.

Photographers who've bought this well-built lens give it high marks. "Nice bokeh," says one, referring to the smooth quality of its out-of-focus backgrounds. "It feels like a much higher-priced lens," writes a reviewer at *Adorama.com*. "I've compared it to to many other name-brand lenses, and the difference in optical quality is nil." Indeed, the Pro Optic 85mm f/1.4 ASPH stays sharp where you need it to be—on your subject's features—even when

you set it wide-open, to f/1.4.

The lens's 85mm focal length delivers flattering perspective when you're shooting up close and personal, with no bulging noses or big foreheads. And while it "covers" full-frame DSLRs such as the Canon EOS 5D or Nikon D700, it can also be used on smaller-sensor DSLRs such as the Nikon D5100 or Canon EOS Rebel—yielding effective, portrait-perfect focal lengths ranging from 110mm to 146mm. ■

The Pro Optic 85mm f/1.4 ASPH is available exclusively from ADORAMA, starting at $279. To order, visit the Adorama store, *Adorama.com*, or call (800) 223-2500.

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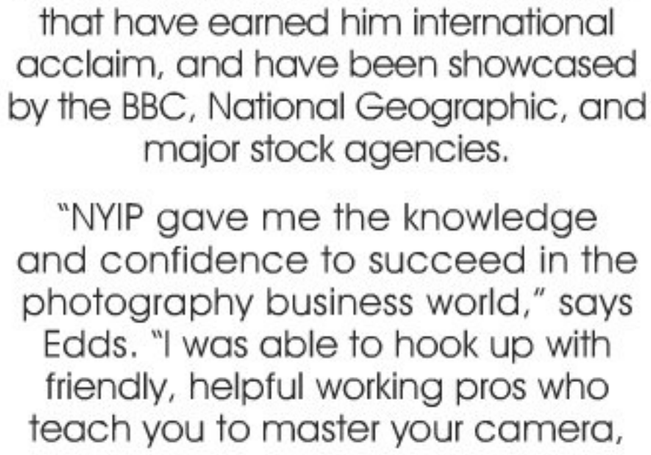

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A STANDARD-RANGE kit zoom for the Samsung NX200 interchangeable-lens compact, this lens (a Version II) is also fully compatible with Samsung's NX10, NX20, and NX100 bodies. Given the size of its image circle, the lens' focal range matches that of almost all APS-C-format DSLR kit zooms as well as recent APS-C lenses from Fuji, Samsung, and Sony for the now-booming ILC format. This Samsung is the very first ILC lens that we could bayonet onto our optical bench for SQF tests, thanks to a mount supplied by Samsung.

A 29–82.5mm full-frame equivalent with on-board optical image stabilization (OIS), this light though not-so-compact lens delivered Excellent-range SQF numbers across the board. At 55mm, it ranked slightly below comparable Nikon, Pentax, and Sony DSLR kit zooms, and matched the performance of the lens' first version.

Distortion control, as measured by DxO's Analyzer 4.1, also

CONTINUES ON PAGE 116

SAMSUNG 18–55MM F/3.5–5.6 OIS II

WHAT'S HOT

Focus ring can adjust camera settings.

WHAT'S NOT

Visible-range distortion at 18mm.

WHO IT'S FOR

Anyone wanting a great shooting experience with a Samsung ILC.

SPECIFICATIONS

18–55MM (18.57–53.49mm tested), f/3.5–5.6 (f/3.59–5.80 tested), 12 elements in 9 groups. Focus ring turns 130 degrees. Zoom ring turns 80 degrees. Focal length marked at 18-, 24-, 35-, 45-, and 55mm.
DIAGONAL VIEW ANGLE: 75–28 degrees.
WEIGHT: 0.43 lb. **FILTER SIZE:** 58mm.
MOUNTS: Samsung NX.
INCLUDED: Lenshood.
STREET PRICE: $250.
WEBSITE: samsung.com

TEST RESULTS

DISTORTION: At 18mm, 0.62% (Visible) barrel. At 35mm, 0.19% (Slight) pincushion. At 55mm, 0.28% (Slight) pincushion.
LIGHT FALLOFF: At 18mm, none. At 35mm, none. At 55mm, none.
CLOSE-FOCUSING DISTANCE: 9.66 inches.
MAXIMUM MAGNIFICATION RATIO: At 18mm, 1:9.88. At 35mm, 1:5.16. At 55mm, 1:3.57.
STABILIZATION: 3 stops.

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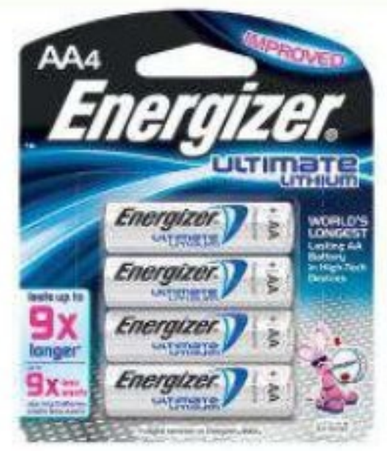

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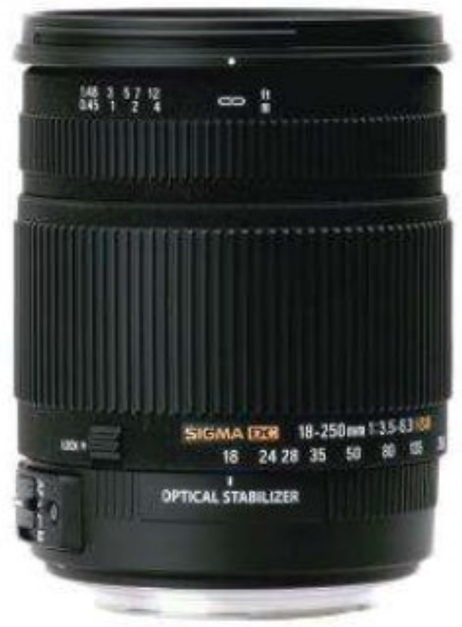

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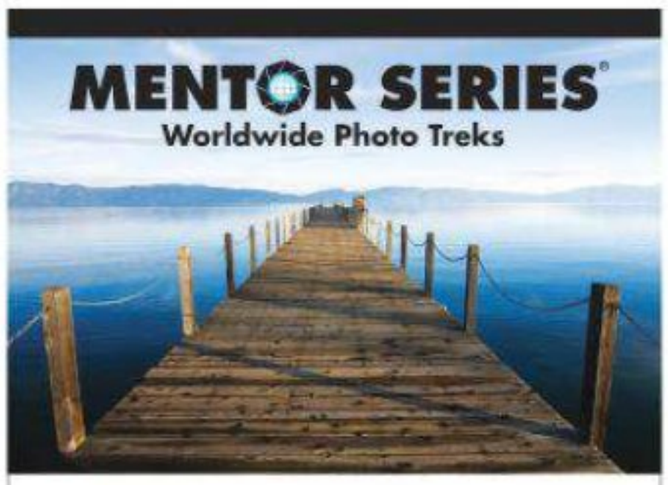

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NOW A DOZEN strong, the high-speed, manual-focus ZE- and ZF.2-mount primes from Carl Zeiss for full-frame Canon and Nikon bodies, respectively, are among the most ruggedly made lenses on the planet. While Zeiss makes no apparent provision for moisture or dust resistance in the form of special sealing, gaskets, or O-rings, the company builds these all-metal lenses to such consistently tight manufacturing tolerances that such provisions may prove unnecessary.

This 15mm f/2.8 lens ($2,950, street) features two aspheric elements as well as an unspecified number of "partial dispersion" glass elements for controlling color fringing. It scales up to about 24mm on Canon and 22.5mm on Nikon APS-C bodies; sports a fixed lens shade; and, unlike almost all other high-speed, ultrawide full-framers, accepts standard threaded filters (95mm). Also nice: This internal-focusing optic's nonrotating front element is well suited to lens-mounted filters and flash accessories.

The Canon-mount ZE version (which we tested) offers a depth-of-field scale, with full-stop index marks for all apertures between

CONTINUES ON PAGE 120

ZEISS DISTAGON T* 15MM F/2.8 ZE

WHAT'S HOT
Ultrawide and fast with little distortion.

WHAT'S NOT
High price, bulky, no autofocus.

WHO IT'S FOR
Shooters looking for a lens that can set their photography apart.

SPECIFICATIONS

15MM (15.36mm tested), f/2.8 (f/2.77 tested), 15 elements in 12 groups. Focus ring turns 60 degrees.
DIAGONAL VIEW ANGLE: 110 degrees.
WEIGHT: 1.84 lbs. **FILTER SIZE:** 95mm.
MOUNTS: Canon, Nikon.
STREET PRICE: $2,950.
WEBSITE: zeiss.com

TEST RESULTS

DISTORTION: 0.32% (Visible) barrel.
LIGHT FALLOFF: Gone by f/5.
CLOSE-FOCUSING DISTANCE: 10.12 inches.
MAXIMUM MAGNIFICATION RATIO: 1:6.80.

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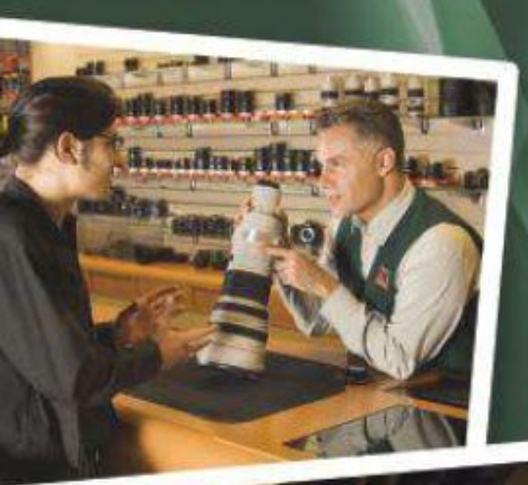

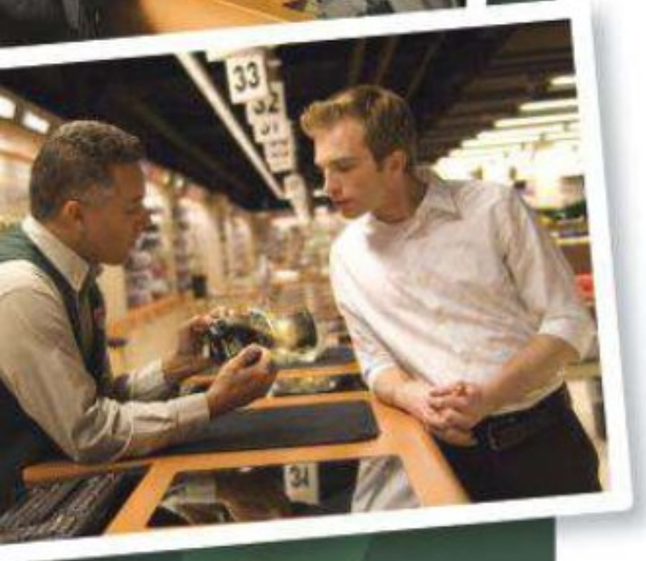

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Page 2

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- SD/SDHC/SDXC Card Slot
- Full 1080p HD Video with Stereo Sound
- Super Slow Motion Movie Records 240fps

#CAPSE110 Black, Blue, Green, Pink, Red, Silver*

16 Mega Pixels

Canon Powershot G12

- 2.8" Vari-Angle LCD • 1280 x 720p HD Video Capture • Stereo Sound for Video
- 5x Optical Zoom • 4x Digital Zoom
- 6.1-30.5mm f/2.8-4.5 (35mm equiv: 28-140mm) • SD/SDHC/SDXC Card Slot
- RAW File Mode • Dim.: 4.41 x 3 x 1.9"

*#CAPSG12**

10 Mega Pixels

Canon PowerShot G1 X

- 3.0" Vari-Angle LCD • Full 1080p HD Video • Optical Viewfinder
- 4x Optical Zoom • 4x Digital Zoom
- 15.1-60.4mm f/2.8-5.8 (35mm equiv: 28-112mm) • SD/SDHC/SDXC Card Slot
- Manual & Numerous Other Shooting Modes

#CAPSG1X

14 Mega Pixels

Nikon Coolpix AW100

- 3.0" LCD • 5x Optical Zoom
- 5-25mm f/3.9-4.8 (35mm equiv: 28-140mm) • SD/SDHC/SDXC Card Slot
- Waterproof to 33' Deep
- Shockproof for Drops up to 5'
- Full HD 1080p Video with Stereo Sound

#NICPAW100 Black, Blue, Orange*

16 Mega Pixels

Panasonic Lumix DMC-LX5

- 3" LCD • HD Video Recording
- 3.8x Optical Zoom • 4x Digital Zoom
- 5.1-19.2mm f/2-3.3 (35mm equiv: 24-90mm) Leica DC Vario-Summicron
- SDHC/SDXC Card Slot • Raw Recording
- Dimensions: 4.32 x 2.58 x 1.69"

#PADMCLX5 Black, White*

10 Mega Pixels

SONY CyberShot DSC-W610

- 2.7" LCD • 720p HD Video
- iAuto Mode • 4x Optical Zoom
- 4.7-18.8mm f/2.8-5.9 (35mm equiv: 26-105mm) • Face Priority Function
- MS Duo, SD/SDHC/SDXC Card Slot
- Sweep Panorama Mode Up to 360°

#SODSCW610 Black, Blue, Green, Pink, Silver*

14 Mega Pixels

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4GB	16.99	—	—	9.95	12.95	—	—	13.95	—	—	—	18.95	—	—	—
8GB	26.95	CALL	—	14.95	16.95	—	—	23.95	36.95	95.56	—	29.95	49.95	—	—
16GB	39.95	CALL	CALL	—	—	26.50	57.95	39.95	69.00	118.50	139.00	54.95	84.95	129.95	—
32GB	79.95	CALL	CALL	—	—	59.95	114.95	—	136.95	159.95	246.79	—	153.95	239.95	—
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	Delkin	Kingston	Lexar		Sandisk			Panasonic
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64GB	174.95	247.50	114.95	169.50	109.95	128.95	237.50	209.95
128GB	—	—	193.50	—	—	246.95	—	—

Note: Not all devices support SDXC cards

SDHC-UHS-1 Ultra High Speed

	Delkin	Kingston	Lexar		Sandisk		Panasonic		Sony
	Elite 80 MBs	Ultimate XX 35 MBs	Class 10 400x	Class 10 600x	Ultra 30 MBs	Extreme Pro 90 MBs	Gold 25 MBs	Pro Class 10	Pro Class 10
8GB	29.95	39.50	21.95	—	—	30.15	29.95	54.95	24.95
16GB	54.95	74.95	33.95	49.50	24.95	59.99	54.95	113.50	39.95
32GB	114.95	146.50	56.50	89.95	54.95	118.95	101.97	204.95	69.95

SD HC Secure Digital High Capacity

	Delkin		Kingston				Lexar			Sandisk				Sony		
	Pro Class 6	Pro Class 10	Standard Class 4	Standard Class 6	Ultimate X Class 10	Micro Class 4 Multi Kit	Std Class 4	Platinum II 100x	Professional Class 10 133x	Std Class 4	Ultra	Extreme Class 10	Micro Class 4	Standard Class 4	Standard Class 10	Micro Class 4
4GB	—	8.95	—	—	—	6.99	6.01	7.95	—	7.95	9.99	12.62	7.95	7.50	—	8.95
8GB	13.95	10.95	6.95	16.95	15.95	8.95	9.95	10.79	20.90	10.95	10.95	16.95	10.95	9.99	13.08	10.53
16GB	22.95	17.95	14.95	19.95	18.95	16.95	16.95	17.95	24.95	17.99	16.50	29.95	17.77	19.95	20.95	—
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AT-3410	BA-00T	6.6 lb	59.4"	16.5"	3.4 lb	#OBAT3410BA00	$224.95
AT-3420	BA-0T	11 lb	62.6"	17.7"	4.2 lb	#OBAT3420BA0T	$259.95
6x Carbon Fiber Series with Head							
CT-3400	BB-0T	12.4 lb	56.7"	15"	3 lb	#OBCT3400BB0T	$349.95
CT-3410	BB-0T	16.8 lb	59.4"	16.5"	3 lb	#OBCT3410BB0T	$399.95
CT-3420	BB-1T	22 lb	62.8"	17.7"	4 lb	#OBCT3420BB1T	$449.95
CT-3500	BB-0T	12.4 lb	53.3"	12.8"	2.5 lb	#OBCT3500BB0T	$349.95
CT-3510	BB-0T	16.8 lb	60.6"	15.5"	3.2 lb	#OBCT3510BB0T	$399.95
CT-3520	BB-1T	22 lb	64.8"	16.5"	4 lb	#OBCT3520BB1T	$469.95

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Panasonic Lumix DMC-GX1 Mirrorless System Camera

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- Micro 4/3 Lens Mount
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- RAW Image Capture

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16 Mega Pixels

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*Body Only..... #SOSLTA77V**

24 Mega Pixels

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18-250/3.5-6.3 DT (62ø)	599.99
24-70/2.8 Carl Zeiss (77ø)	1,799.99
70-200/2.8 G APO (77ø)	1,999.99
70-300/4.5-5.6 G (62ø)	899.99
75-300/4.5-5.6 (55ø)	249.99
1.4x Teleconverter	499.99
2x Teleconverter	499.99

OLYMPUS
50mm f/2 Macro ED Zuiko Digital Lens

- *Designed exclusively for Digital SLRs*
- Ideal for macro photography and also as a portrait lens
- Magnification 1:2
- ED glass element
- Min. focus: 9.45"
- 52mm filter diameter
- Weight: 10.6 oz

PENTAX
18-135mm f/3.5-5.6 ED AL (IF) DC WR Digital Lens

- *Designed exclusively for Digital SLRs*
- SP Coating Repels Dust, Water, & Grease
- Weather resistant
- Quick-Shift Focus System
- Min. focus: 1.3'
- 62mm filter diameter
- Weight: 14.3 oz

SONY
HVL-F58AM Shoe-Mount Digital Flash

- Zoom Head (24-105mm)
- Bounce & Swivel Head
- Guide No. 190'
- TTL Dedication
- Vari-Power
- High-Speed Sync
- Auto WB Adjustment
- Wireless Ratio Control
- Weight: 15.6 oz

SONY
16-80mm f/3.5-4.5 Carl Zeiss T* DT Digital Lens

- *Designed exclusively for Digital SLRs*
- Ideal for snapshots, portraits, interiors, or outdoor scenery
- 35mm equiv: 24-120mm
- Min. focus: 13.8"
- 62mm filter diameter
- Weight: 15.5 oz

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Canon Digital Rebel T3 DSLR

- 2.7" Clear View LCD with Live View Function
- Uses Canon EF Lenses (1.6x factor)
- SDHC/SDXC Card Slot
- 3 fps Continuous Shooting
- ISO 100-6400
- Full HD Movie Mode
- RAW + JPEG Files
- Basic + Function / Creative Auto
- 63 Zone Dual-Layer System/9 Point AF

Kit with 18-55mm IS..... #CAEDRT3K

12 Mega Pixels

Canon Digital Rebel T3i DSLR

- 3" Clear View Vari-Angle LCD
- Uses Canon EF Lenses (1.6x factor)
- SDHC/SDXC Card Slot
- 3.7 fps Continuous Shooting
- ISO 100-6400
- RAW + JPEG Files
- Full HD Movie Mode with Manual Exposure
- 63 Zone Dual-Layer System/9 Point AF

Body Only..... #CAEDRT3I
Kit with 18-55mm IS..... #CAEDRT3IK

18 Mega Pixels

Canon EOS-60D DSLR

- 1920 x 1080 HD Video Capture
- DIGIC 4 Image Processor
- SD/SDHC/SDXC Card Slot
- Works with all Canon EF & EF-S Lenses • Vari-Angle Clear View 3.0" Flip-Out LCD
- HDMI Output to HDTV
- 5.3 fps Continuous Shooting
- ISO 6400 - Expandable to 12800

Body Only..... #CAE60D
Kit with 18-135mm IS..... #CAE60D18135
Kit with 18-200mm IS ..... #CAE60D18200

18 Mega Pixels

Canon EOS-5D Mark III DSLR

- 3.2" Clear View High Resolution LCD
- DIGIC 5+ Image Processor
- 61-Point High Density AF
- Uses Canon EF Lenses
- Dual CF, SD Card Slots
- Extended ISO Range (50-102400)
- Durable Magnesium-Alloy Construction
- Full HD 1080/30p and 720/60p Formats
- Built-In HDR and Multiple Exposure Modes

*Body Only..... #CAE5D3**
Kit with 24-105mm L IS..... #CAE5D324105
EOS-5D Mark II *Body Only. #CAE5D2* ..... ***In Stock***

22 Mega Pixels

Canon EOS-7D DSLR

- Record HD Video • 3" LCD
- Uses Canon EF Lenses
- CF, MD Card Slot
- Dust and Weather Resistant
- Selectable Video Exposure and Frame Rates
- ISO 100-6400 (expandable to 12800) • 8 fps Burst Mode
- 19-Point, All Cross-Type AF System

Body Only..... #CAE7D
Kit with 18-135mm IS..... #CAE7D18135
Kit with 28-135mm IS..... #CAE7D28135

18 Mega Pixels

Canon EOS-1Dx DSLR

- Dual DIGIC 5+ Image Processors
- Magnesium Alloy Body
- Eye-Level Pentaprism Viewfinder
- 3.2" LCD Monitor
- Uses Canon EF Lenses
- Dual CF card slots
- 1920 x 1080 HD Video Capture
- Live View Still and Video Recording
- 61-Point High Density Auto Focus

*Body Only..... #CAE1DX**

18 Mega Pixels

Canon SLR Lenses and Flashes

Call for Available Rebates & Promotions on Select Bodies, Lenses and Flashes!

EOS Flash System (USA)

270EX
270EX II
320EX
430EX II
580EX II
600EX-RT
MR-14EX Ringlight
MT-24EX Twin Flash

EF-S Lenses for Digital Only (USA)

(Not compatible with full frame cameras)

60/2.8 USM Macro (52ø)
10-22/3.5-4.5 USM (77ø)
15-85/3.5-5.6 IS USM (72ø)
17-55/2.8 IS USM (67ø)
17-85/4-5.6 IS USM (67ø)
18-55/3.5-5.6 IS (58ø)
18-135/3.5-5.6 IS (67ø)
18-200/3.5-5.6 IS (72ø)
55-250/4.0-5.6 IS USM (58ø)

EF Lenses (USA)

24/2.8 (58ø)
28/1.8 USM (58ø)
28/2.8 (52ø)
35/2 (52ø)
20/2.8 USM (72ø)
50/1.8 II (52ø)
50/2.5 Macro (52ø)
50/1.4 USM (58ø)

EF Lenses (USA)

MP-E 65/2.8 1x-5x Macro (58ø)
85/1.8 USM (58ø)
100/2 USM (58ø)
100/2.8 USM Macro (58ø)
135/2.8 (52ø)
28-135/3.5-5.6 IS USM (72ø)
70-300/4-5.6 IS USM (58ø)
70-300/4.5-5.6 DO IS USM (58ø)
75-300/4.0-5.6 III (58ø)
75-300/4.0-5.6 III USM (58ø)

TS-E MF Lenses (USA)

17/4.0 "L"
24/3.5 "L" II
45/2.8
90/2.8

EF "L" Lenses (USA)

14/2.8 USM II
24/1.4 II (77ø)
35/1.4 USM (72ø)
50/1.2 USM (72ø)
85/1.2 USM II (72ø)
100/2.8 IS USM Macro (67ø)
135/2.0 USM (72ø)
180/3.5 USM Macro (72ø)

EF "L" Lenses (USA)

200/2.8 USM II (72ø)
200/2.0 IS USM (52ø)
300/4.0 IS USM (77ø)
300/2.8 IS USM II (52ø rear)
400/5.6 USM (77ø)
400/2.8 IS II (52ø rear)
500/4 IS USM (52ø rear)
600/4.0 IS (52ø rear)
8-15/4.0 Fish-eye USM
16-35/2.8 USM II (82ø)
17-40/4.0 USM (77ø)
24-70/2.8 USM (77ø)
24-105/4 IS USM (77ø)
28-300/3.5-5.6 IS USM (77ø)
70-200/4.0 USM (67ø)
70-200/4.0 IS USM (77ø)
70-200/2.8 USM (77ø)
70-200/2.8 IS II USM (77ø)
70-300/4.0-5.6 IS USM (67ø)
100-400/4.5-5.6 IS USM (77ø)
1.4x II Teleconverter
1.4x III Teleconverter
2x III Teleconverter

Canon 600 EX-RT Shoe-Mount Flash

- Dust and water resistance
- Guide No. 197'
- Wireless Radio Multiple Flash System
- Bounce and Swivel Head
- Zoom Head (20-200mm)
- 18 Custom Functions
- Weight: 15 oz

Canon 10-22mm f/3.5-4.5 EF-S USM Digital Lens

- ***Designed exclusively for Digital SLRs***
- 35mm equivalent: 16-35mm
- Min. Focus: 9.5"
- 3 aspherical lens elements
- 3.5-27 f/Stop Range
- 77mm filter diameter
- Weight: 13.6 oz

Canon 24-70mm f/2.8 EF "L" USM Zoom Lens

- Sealed and gasketed against dust and moisture
- Internal Focusing
- UD Element
- Two Aspherical Elements
- 2.8-22 f/Stop Range
- Focus 1.25' to Infinity
- 77mm filter diameter
- Weight 33.6 oz

Canon 70-200mm f/2.8 EF "L" IS II USM Telephoto-Zoom Lens

- Improved Optical Image Stabilization provides up to 4 stops correction
- Min. Focus: 3.9'
- Dust & moisture resistant
- 77mm filter diameter
- Weight: 52.56 oz

Nikon 1 J1 Mirrorless Digital Camera

- EXPEED 3 Dual Image Processor
- Interchangeable 1 NIKKOR Lens System
- 3.0" Anti-Glare Color LCD
- SD/SDHC/SDXC Card Slot
- Full HD (1080p) Movie Record Mode
- Motion Snapshot 1-Touch Photo Animation
- 10 fps Continuous Shooting in AF Mode
- Available in Black, Red, Silver or White
- Nikon Inc. limited warranty included

** Available in Black only

*Kit with 10-30mm VR**.....#NI1J1*.....**646.95**
Kit with 10mm & 10-30mm VR...#NI1J110.....**896.95**
Kit with 10-30 & 30-110mm VR..#NI1J11030.....**896.95**

10 Mega Pixels

Nikon D3100 DSLR

- HD 1080p Video w/ Sound & Autofocus
- 3" LCD • Live View
- Uses Nikon AF Lenses (1.5x factor)
- SD/SDHC Card Slot
- 11-point Autofocus
- 3 Frames per Second Shooting
- ISO 100 to 3200 (Expand to 12800-Hi2)
- Self Cleaning Sensor
- Nikon Inc. limited warranty included

Kit with 18-55mm VR.....#NID31001855.....**646.95**

14 Mega Pixels

Nikon D5100 DSLR

- 1080p HD Movies with Full Time AF
- Uses Nikon AF Lenses (1.5x factor)
- 3.0" Vari-angle LCD
- SD/SDHC Card Slot
- ISO Sensitivity 100-6400
- In-Camera Special Effects Mode
- In-Camera HDR (High Dynamic Range)
- Fast 11-Point Autofocus System
- Nikon Inc. limited warranty included

Body Only.....#NID5100.....**746.95**
Kit with 18-55mm VR.....#NID51001855.....**846.95**

16 Mega Pixels

Nikon D7000 DSLR

- EXPEED 2 Image Processor
- 1080p HD Video Capture
- RAW + JPEG Still Image Capture
- Accepts Nikon AF Lenses (1.5x factor) • 3" LCD Monitor
- Twin SD/SDHC/SDXC Card Slots
- 39-point AF System
- RGB 3D Matrix Metering System
- i-TTL Flash + Speedlight Compatibility
- Nikon Inc. limited warranty included

Body Only.....#NID7000.....**1,199.95**

16 Mega Pixels

Nikon D800 DSLR

- 35.9x24mm CMOS FX Format Sensor
- 3.2" LCD Monitor
- Nikon F Mount Lens Mount
- CF & SD Dual Card Slots
- Optical Low-Pass Filter
- Eye-Level Pentaprism Viewfinder
- 1920 x 1080/30/25/24p HD Video Capture • Matrix/Center-Weighted/Spot Metering
- Built-In Flash + i-TTL Flash Control
- Nikon Inc. limited warranty included

Body Only.....#NID800..... **2,999.95**

36 Mega Pixels

Nikon D4 DSLR

- RAW, TIFF, JPEG, RAW+JPEG Files
- FX-format (full-frame) CMOS Sensor
- 1080p HD Broadcast Quality Video
- EXPEED3 Image Processor
- 3.2" LCD Screen with Live View
- Compatible with Most Nikkor Optics
- Matrix, Center-Weighted, Spot Metering • 100-12800 ISO
- CF Type 1 & XQD Compatible
- Nikon Inc. limited warranty included

Body Only.....#NID3S.....**5,999.95**

16 Mega Pixels

Nikon SLR Lenses and Flashes

Call for Available Rebates & Promotions on Select Bodies, Lenses and Flashes!

AF Flashes

SB-400 .....
SB-700 .....**326.95**
SB-900 .....
SB-910 .....**546.95**
R1 Wireless Twin Flash .....
R1C1 Wireless Twin Flash System .....

DX ED-IF Lenses for Digital Only

10.5/2.8 Fish-Eye .....
35/1.8 G AF-S (52ø) **196.95**
40/2.8 G AF-S Micro (52ø) **276.95**
85/3.5 G ED VR Micro (52ø) .....
10-24/3.5-4.5 G AF-S (77ø) .....
12-24/4 G AF-S (77ø) .....
16-85/3.5-5.6 G AF-S VR (67ø) .....
17-55/2.8 G AF-S (77ø) .....
18-55/3.5-5.6 G AF-S II (52ø) .....
18-55/3.5-5.6 G AF-S VR (52ø) **196.95**
18-105/3.5-5.6 G AF-S VR (67ø) **396.95**
18-200/3.5-5.6 G AF-S VR II (72ø) **846.95**
55-200/4-5.6 G AF-S (52ø) .....
55-200/4-5.6 G AF-S VR (52ø) **246.95**
55-300/4.5-5.6 G AF-S VR (58ø) **396.95**

D-Type AF Lenses

14/2.8 D ED .....
16/2.8 D (39ø) with Hood .....
20/2.8 D (62ø) .....
24/2.8 D (52ø) .....
24/1.4 G AF-S ED (77ø) .....
24/3.5 D ED PC-E (77ø) .....
28/2.8 D (52ø) .....
35/2.0 D (52ø) .....
35/1.4 G AF-S ED (67ø) .....
45/2.8 D ED PC-E Micro (77ø) .....
50/1.8 D (52ø) .....
50/1.8 G AF-S (58ø) **216.95**
50/1.4 D (52ø) .....
50/1.4 G AF-S (58ø) .....
60/2.8 D Micro (62ø) (1:1) .....
60/2.8 G AF-S ED Micro (62ø) .....
85/1.8 D (62ø) with Hood .....
85/1.4 D IF (77ø) .....
85/1.4 G AF-S (77ø) .....
85/1.8 G AF-S (67ø) **499.95**
85/2.8 PC-E Micro (77ø) .....
105/2.8 G AF-S ED-IF VR Micro (62ø) .....
105/2.0 DC D with Hood (72ø) .....
180/2.8 D ED-IF (72ø) .....

D-Type AF Lenses

200/4 D ED-IF Micro w/Case (62ø) .....
200/2 G AF-S ED-IF VR (52ø) .....
300/4.0 D AF-S ED-IF (77ø) .....
300/2.8 G AF-S VR (52ø-R) .....
400/2.8 G AF-S VR ED (52ø) .....
500/4.0 G AF-S VR ED (52ø) .....
600/4.0 G AF-S VR ED (52ø) .....
14-24/2.8 G AF-S ED-IF **1,996.95**
16-35/4.0 G AF-S ED VR (77ø) .....
17-35/2.8 D AF-S ED-IF (77ø) .....
24-70/2.8 G AF-S ED-IF (77ø) **1,886.95**
24-85/2.8-4.0 D IF (72ø) .....
24-120/4.0 G AF-S ED VR (77ø) **1,296.95**
28-300/3.5-5.6 G AF-S ED VR (77ø) .....
70-200/2.8 G AF-S ED-IF VR II (77ø) **2,396.95**
70-300/4.0-5.6 G (62ø) .....
70-300/4.5-5.6 G-AFS VR (67ø) **586.95**
80-200/2.8 D with Collar (77ø) .....
80-400/4.5-5.6 D VR (77ø) .....
200-400/4 G AF-S ED VR II (52ø) .....
TC-14E II (1.4x) Teleconverter .....
TC-17E II (1.7x) Teleconverter .....
TC-20E III (2x) Teleconverter .....

Nikon 24-70mm f/2.8 G AF-S ED-IF Zoom Lens

- Optimized for edge-to-edge sharpness on both the Nikon FX (full-frame) and DX-format image sensors
- Rugged construction, dust and moisture resistance
- Minimum focus 1.2'
- 77mm filter diameter
- Weight 32 oz

Nikon 18-200/3.5-5.6 DX G VR II AF-S ED-IF Digital Lens

- *Designed exclusively for Digital SLRs*
- 35mm equiv. 27-300mm
- **VR II** Vibration Reduction
- SWM (Silent Wave Motor)
- 3.5-22 f/Stop Range
- Focus 1.6' to Infinity
- 72mm filter diameter
- Weight 19.8 oz

Nikon 70-200/2.8 G AF-S ED-IF VR II Telephoto-Zoom Lens

- **VR II** Vibration Reduction
- 3.5-22 f/Stop Range
- SWM (Silent Wave Motor)
- Close Focusing to 4.6'
- 77mm filter diameter
- Weight 3.2 lbs

Nikon SB-910 Speedlight i-TTL Shoe Mount Flash

- Tungsten & Fluorescent Filters Included
- Guide No. 111.5'
- Simplified Graphic User Interface (GUI)
- Bounce & Swivel Head
- Zoom Head (17-200mm)
- Wireless Controller
- Weight 14.8 oz

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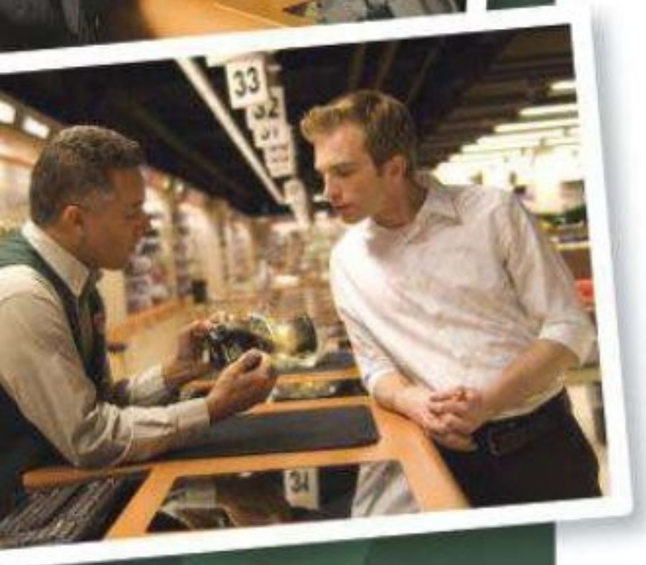

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TAMRON AF LENSES

Six-Year Warranty | Manual Focus Lenses In Stock – Call for Prices

Di for both digital and film SLR cameras • **Di-II** for Digital SLRs Only • **Di III** for mirror-less cameras Only

C = Canon N = Nikon P = Pentax SM = Sony/Minolta SE = Sony E Mount *** Price After Rebate* *Exp. 4-30-12*

		SKU #	Available for	Rebate	Price
Di-II	60/2.0 LD IF Macro (55ø)	#TA602DI*	C, N, SM	$100	424.00**
Di	90/2.8 Macro (55ø)	#TA9028M*	C, N, P, SM	$50	449.00**
Di	180/3.5 LD IF Macro (72ø)	#TA18035*	C, N, SM	$50	689.00**
Di-II	10-24/3.5-4.5 (77ø)	#TA102435*	C, N, P, SM	$50	449.00**
Di-II	17-50/2.8 XR LD IF Aspherical (67ø)	#TA175028*	C, N, P, SM	$25	474.00**
Di-II	17-50/2.8 XR VC LD IF Asph. (67ø)	#TA175028*Q	C, N	$50	599.00**
Di-II	18-200/3.5-6.3 (62ø)	#TA1820035*	C, N, P, SM	$50	249.00**
Di-III	18-200/3.5-6.3 VC (62ø) Black or Silver	#TA1820035S*	SE	—	739.00
Di-II	18-270/3.5-6.3 VC (72ø)	#TA1827035*	N	—	CALL
Di-II	18-270/3.5-6.3 VC PZD (62ø)	#TA18270*	C, N, SM	$50	599.00**
Di	28-75/2.8 XR (67ø)	#TA287528*	C, N, P, SM	$25	474.00**
Di	28-300/3.5-6.3 XR LD (62ø)	#TA2830035XD*	C, P, SM	—	419.00
Di	28-300/3.5-6.3 XR VC (62ø)	#TA2830035*	C, N	—	629.00
Di	70-200/2.8 LD IF Macro (77ø)	#TA7020028M*	C, N, P, SM	—	769.00
Di	70-300/4.0-5.6 VC USD (62ø)	#TA70300*	C, N, SM	$50	399.00**
Di	75-300/4.0-5.6 LD (62ø)	#TA753004*	C, N, SM	—	164.00
Di	200-500/5-6.3 LD IF (86Cø)	#TA2005005*	C, N, SM	—	949.00
	1.4x SP AF Pro Teleconverter	#TA14XP*	C, N	—	224.00
	2x SP AF Pro Teleconverter	#TA2XP*	C, N	—	254.00

Tokina AF LENSES

DX – for Digital SLRs Only **FX** – Designed for full frame DSLRs *** Price After Rebate* *Exp. 6-30-12*

** Also Available for Sony Alpha DSLR		Canon EOS	Nikon AF	Rebate	Price
DX	35/2.8 Pro Macro (55ø)	#TO3528PDXC	#TO3528PDXN	—	299.00
FX	100/2.8 Pro D Macro (52ø)	#TO10028PCAF	#TO10028PNAF	—	489.00
DX	10-17/3.5-4.5 ATX Fisheye	#TO101735CAF	#TO101735NAF	—	669.00
DX	11-16/2.8 Pro (77ø) **	#TO111628PDXC	#TO111628PDXN	$40	659.00**
DX	12-24/4.0 Pro II (77ø)	#TO12244DXC	#TO12244DXN	—	599.00
FX	16-28/2.8 Pro	#TO1628FXC	#TO1628FXN	$50	799.00**
FX	17-35/4 Pro (82ø)	#TO1735F4FXC	#TO1735F4FXN	$40	659.00**

SIGMA AF LENSES & FLASHES

New! Instant Rebates up to $200 Expires 5-31-12 ** Price After Rebate

DC – for Digital SLRs Only • **DG** – Optimized for Digital SLRs

H – HSM Model with Canon, Nikon, Sigma
R – Rear Slip-in Gelatin Filter Slot

	Canon	Nikon	Pentax	Sigma	Sony	Rebate	Price
DC 4.5mm f/2.8 EX Circular Fisheye HSM R	#SI4528EXDCC	#SI4528EXDCN	#SI4528EXDCP	#SI4528EXDCSI	#SI4528EXDSO	—	899.00
DG 8/3.5 EX Circular Fisheye R	#SI835CA	#SI835NA	—	#SI835SI	—	—	899.00
DC 10mm f/2.8 EX Fisheye HSM R	#SI1028EXDCC	#SI1028EXDCN	#SI1028EXDCP	#SI1028EXDCSI	#SI1028EXDCSO	—	649.00
DG 15/2.8 EX Diagonal Fisheye R	#SI1528DGCAF	#SI1528DGNAF	#SI1528DGPAF	#SI1528DGSA	#SI1528DGMAF	—	609.00
DG 20/1.8 EX DF RF Aspherical (82ø)	#SI2018CAF	#SI2018NAF	#SI2018PAF	#SI2018SA	#SI2018MAF	—	629.00
DG 24/1.8 EX DF Aspherical Macro (77ø)	#SI2418MCAF	#SI2418MNAF	#SI2418MPAF	#SI2418MSA	#SI2418MMAF	—	549.00
DG 28/1.8 EX DF Aspherical Macro (77ø)	#SI2818MCAF	#SI2818MNAF	#SI2818MPAF	#SI2818MSA	#SI2818MMAF	—	449.00
DC 30mm f/1.4 EX HSM (62ø)	#SI3014DCCAF	#SI3014DCNAF	#SI3014DCPAF	#SI3014DCSA	#SI3014DCMAF	—	489.00
DG 50mm f/1.4 EX (77ø) H	#SI5014C	#SI5014N	#SI5014PE	#SI5014SI	#SI5014SOM	—	499.00
DG 50/2.8 EX Macro (55ø)	#SI5028MDGCAF	#SI5028MDGNAF	#SI5028MDGPAF	#SI5028MDGSA	#SI5028MDGMAF	—	369.00
DG 70/2.8 EX Macro (62ø)	#SI7028MDGCA	#SI7028MDGNA	#SI7028MDGPA	#SI7028MDGSA	#SI7028MDGSAQ	—	499.00
DG 85/1.4 EX HSM (77ø)	#SI8514C	#SI8514N	#SI8514P	#SI8514SI	#SI8514S	—	969.00
DG 105/2.8 EX Macro OS HSM (62ø)	#SI10528MDGCE	#SI10528MDGNQ	—	#SI10528MDGS	#SI10528MDGSM	$200	769.00**
DG 150/2.8 EX APO Macro OS HSM (72ø)	#SI15028AMOC	#SI15028AMON	#SI15028AMOP	#SI15028AMSI	#SI15028AMOS	—	1,099.00
DG 300/2.8 APO EX HSM	#SI30028DGCAF	#SI30028DGNAF	#SI30028DGPAF	#SI30028DGSA	#SI30028DGMAF	—	3,399.00
DG 500/4.5 APO EX HSM	#SI50045DGCAF	#SI50045DGNAF	#SI50045DGPAF	#SI50045DGSA	#SI50045DGMAF	—	4,999.00
DC 8-16/4.5-5.6 HSM	#SI8164556CA	#SI8164556NI	#SI8164556PE	#SI8164556SI	#SI8164556SO	—	699.00
DC 10-20/4-5.6 EX HSM (77ø)	#SI102045DCAF	#SI102045DNAF	#SI102045DPAF	#SI102045DSA	#SI102045DMAF	—	479.00
DC 10-20/3.5 EX HSM (82ø)	#SI102035C	#SI102035SN	#SI102035P	#SI102035SG	#SI102035S	—	649.00
DG 12-24/4.5-5.6 EX Aspherical HSM	#SI122445C	#SI122445N	#SI122445P	#SI122445SI	#SI122445S	—	949.00
DC 17-50/2.8 EX OS HSM (77ø)	#SI175028CA	#SI175028NI	#SI175028PE	#SI175028SI	#SI175028SO	—	669.00
DC 17-70/2.8-4.0 OS Macro HSM (72ø)	#SI177028DCC	#SI177028DCNQ	#SI177028DCP	#SI177028DCSI	#SI177028DCSM	—	469.00
DC 18-50/2.8-4.5 OS HSM (67ø)	#SI185028DOC	#SI185028DON	#SI185028DOP	#SI185028DOSG	#SI185028DOS	—	199.00
DC 18-125/3.8-5.6 OS (Optical Stabilizer) (67ø) H	#SI18125350SC	#SI18125350SN	#SI18125350SP	#SI18125350SI	#SI18125350SS	—	339.00
DC 18-200/3.5-6.3 OS II HSM (72ø)	#SI1820035CQ	#SI1820035NQ	—	#SI1820035SAQ	#SI1820035SQ	$100	399.00**
DC 18-250/3.5-6.3 OS HSM (72ø)	#SI1825035C	#SI1825035N	#SI1825035CP	#SI1825035S	#SI1825035CSN	—	479.00
DG 24-70/2.8 EX IF HSM (82ø)	#SI247028C	#SI247028NF	#SI247028PS	#SI247028S	#SI247028SM	$75	824.00**
DC 50-200/4-5.6 OS HSM (55ø)	#SI5020045DOC	#SI5020045DON	#SI5020045DOP	#SI5020045DSG	#SI5020045DOS	—	159.00
DG 50-500/4.5-6.3 APO OS HSM (95ø)	#SI505004563C	#SI505004563N	#SI505004563P	#SI505004563SA	#SI505004563SM	—	1,659.00
DG 70-200/2.8 EX APO OS HSM (77ø)	#SI7020028CQ	#SI7020028NI	#SI7020028P	SI7020028SIQ	#SI7020028SOQ	$100	1,299.00**
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DG 70-300/4-5.6 APO Macro Super II (58ø)	#SI703004DGCA	#SI70300456AN	#SI703004DGPA	#SI703004DGSA	#SI703004DGMA	—	239.00
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DG 120-400/4.5-5.6 APO OS HSM (77ø Rear)	#SI120400C	#SI120400N	#SI120400PAF	#SI120400S	—	—	999.00
DG 150-500/5-6.3 APO OS HSM	#SI150500C	#SI150500N	#SI150500P	#SI150500S	#SI150500M	—	1,069.00
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DG 2x EX APO Tele-Converter	#SI2XDGCAF	#SI2XDGNAF	#SI2XDGPAF	#SI2XDGSA	#SI2XDGMAF	—	299.00
DG EF-610 ST	#SIEF610STC	#SIEF610STN	#SIEF610STP	#SIEF610STSI	#SIEF610STS	—	165.00
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Linear Polarizer	32.85	35.85	38.85	44.85	55.35
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K2 Yel, X0 Yel/Grn, Grn X1, Or G, Red 25A HMC	25.35	28.35	41.85	49.35	61.35
Close Up Set (+1, +2, +4)	50.85	64.35	77.85	95.85	104.85
Close-Up Set HMC (+1, +2, +4)	65.85	74.85	98.85	—	—
Intensifier – Blue, Green Field, Enhancement (Red)	44.85	55.35	70.35	86.85	104.85
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Circular Polarizer, Slim Circular Polarizer	115.99	121.99	151.99	180.99	195.99
Circular Polarizer SH-PMC, Slim Circ. Pol. SH-PMC	161.99	171.99	214.99	242.99	275.99
#5, #8, #11, #13, #15, #22, 81A, 81B, 81C	49.99	51.99	78.99	96.99	108.99
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Circular Polarizer	63.00	65.00	81.50	93.50	105.00
Circular Polarizer Multi-Coated	90.00	93.50	117.00	134.50	160.50
81A, B, KR3, 6, 12, 15	26.50	26.50	36.00	42.00	49.00
KB1.5, 3, 6, 12, 15, 20	28.50	28.50	35.00	40.50	47.50
#021, 023, 041, 060, 061, 090	24.50	24.50	36.00	42.00	49.00
Graduated (N.D. & Colors)	46.50	47.50	58.50	68.00	82.50
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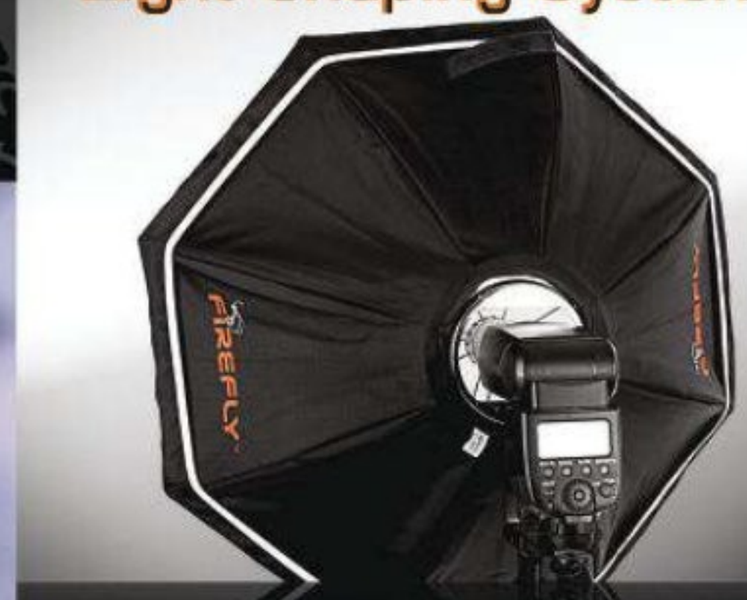

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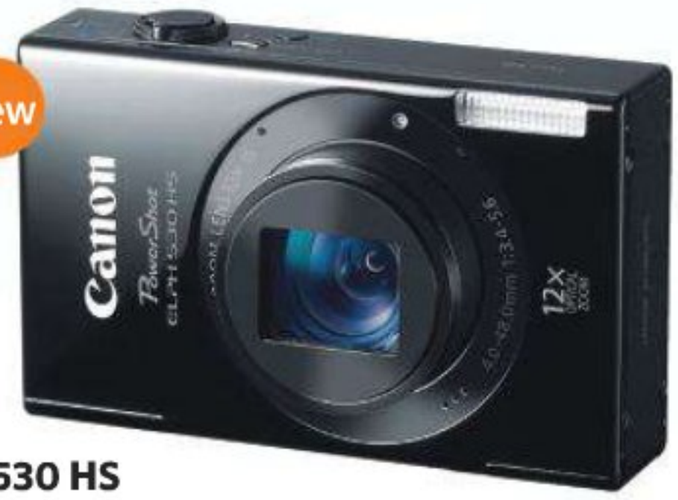

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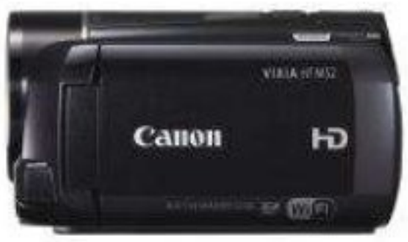

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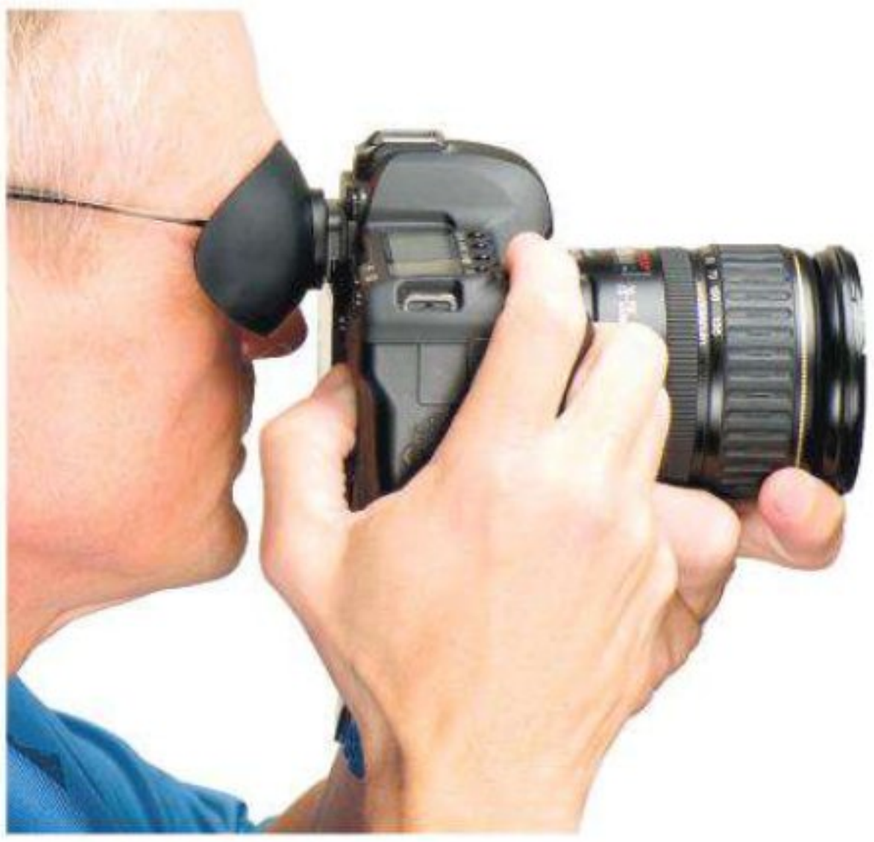

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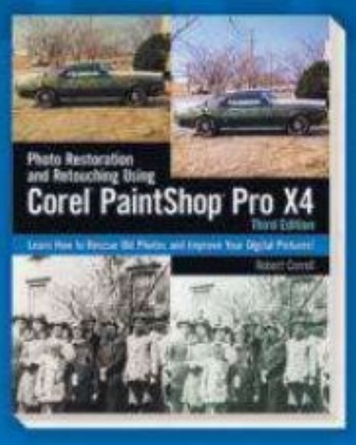

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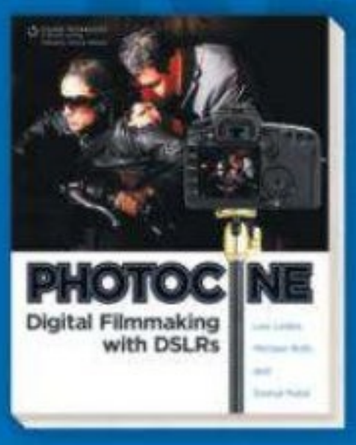

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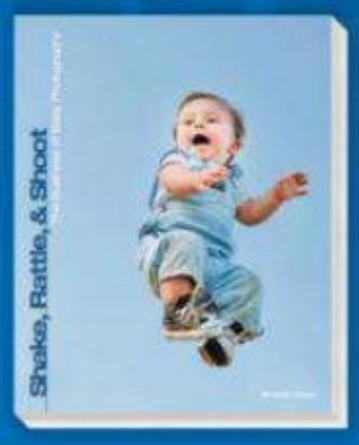

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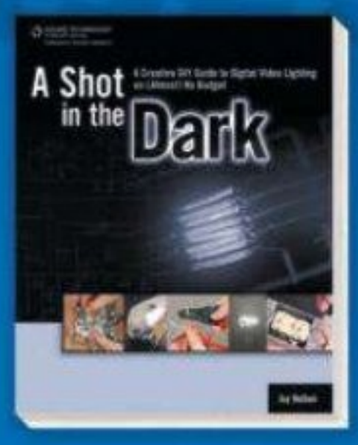

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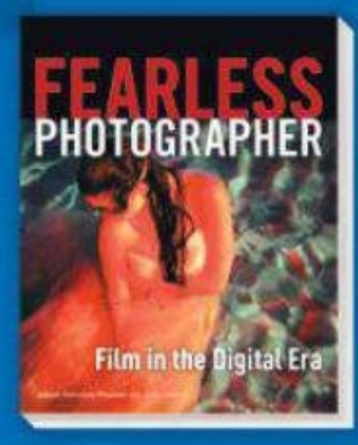

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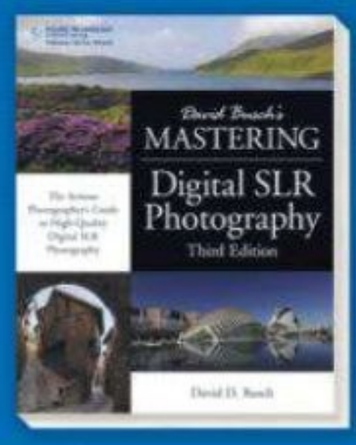

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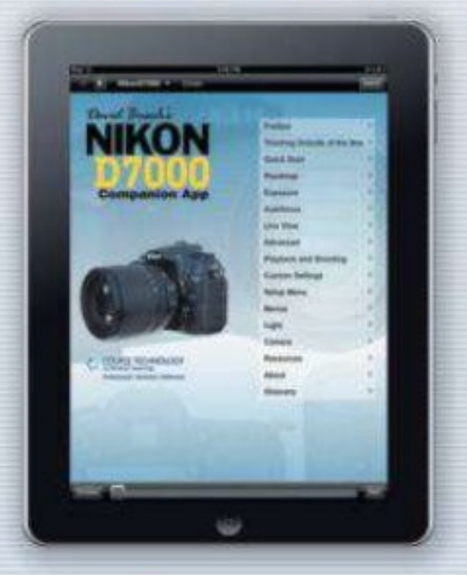

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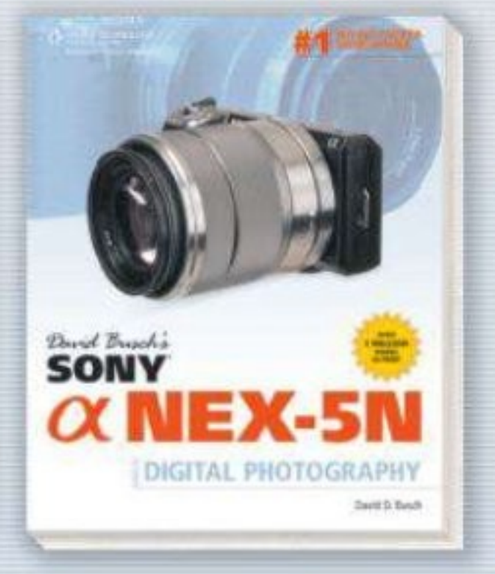

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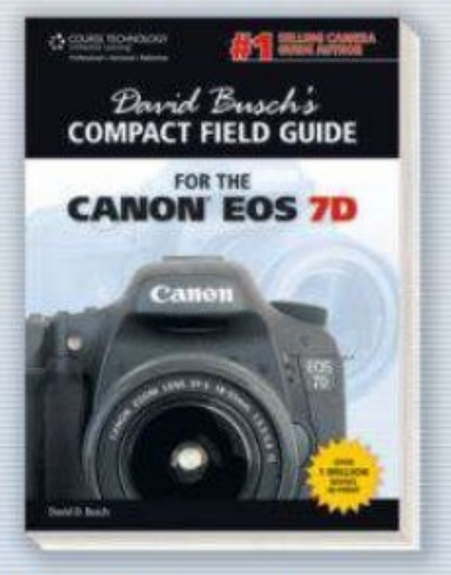

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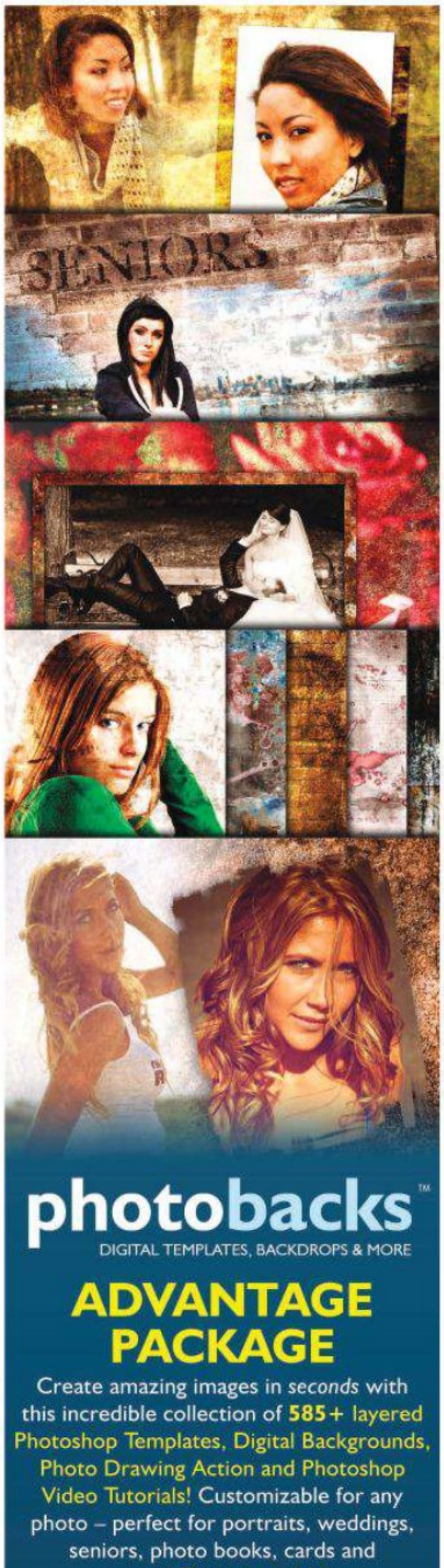

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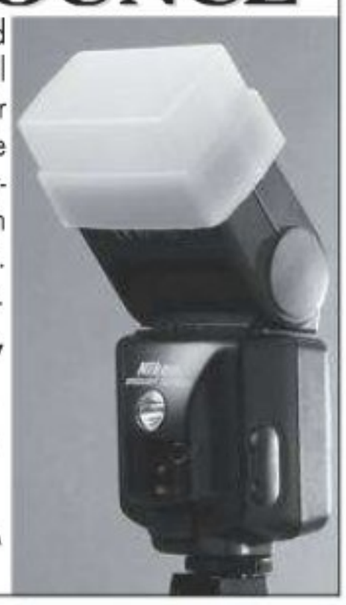

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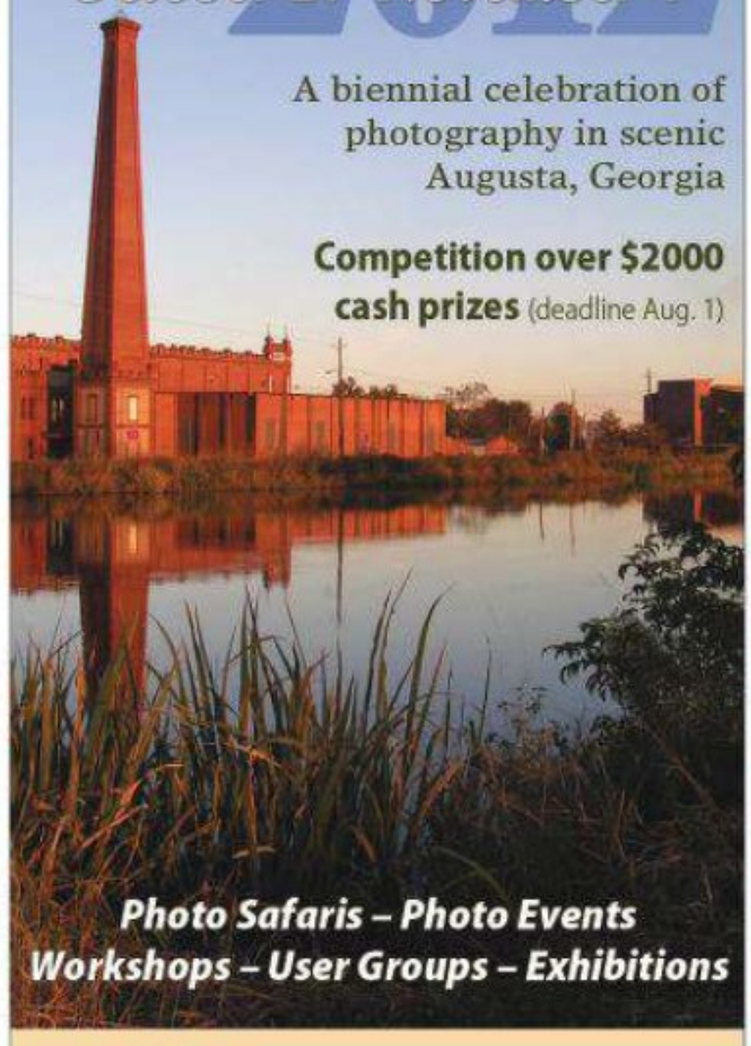

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▲ Talent Scout

This month's cover was shot by Kary H. Lasch, a Czech-born photographer in Stockholm, Sweden. His specialty was finding new faces: In this issue, he says he "rarely sells the same model twice." In this case, his fresh find was 21-year-old Lena Larsson, a cooking student. Lasch used a Rolleiflex, exposing at 1 sec at f/8 on Ansco Color Tunsten film. Two 500-watt spots augmented by a 250-watt flood provided the lighting.

60 YEARS AGO

Life shooter Leonard McCombe showed our readers how to photograph a bullfight in Mexico.

▼ Hospital Drama

This dramatic photo of an operation was taken by Adrian W. Zorgniotti, one of the participating surgeons. He took it through the glass pane of an observation balcony using a Kodak 35 with a 50mm f/3.5 Kodak Anastigmat lens on Kodachrome Type A film together with a Type A filter. The handheld exposure was 1/10 sec at f/3.5.

▲ Combat Camera

Sgt. Peter Ruplenas, a photographer with the U.S. Army's 7th Division in Korea, made this picture of fellow combat cameraman Cpl. Wilfred Hunkins covering an infantry unit. Hunkins was shown using the basic Signal Corps camera, a 4x5 Speed Graphic. As the caption explained, a combat cameraman has "only" two things to worry about: getting the picture and staying alive.

Peaceful Pursuit ▶

In a digest of his book *Stalking Birds with Color Camera*, Arthur A. Allen described his technique for capturing birds on film using a Leica with a 200mm telephoto lens. Typical of Allen's work—which also appeared in *National Geographic*—was this lovely shot of a tree sparrow.

▼ Reshaping the Brick

One of the most popular American-made cameras during the 1940s was the brick-shaped Argus C-3. Apparently feeling the pressure from more fashionable cameras, Argus introduced its streamlined C-4 with an f/2.8 Cintar lens and a combined range- and viewfinder. Shutter speeds were limited, from 1/10 to 1/200 sec plus built-in flash sync. At $99.50, this camera was not enough of a value to ensure the company's survival in an increasingly competitive market.

—Harold Martin

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LAB * LENS TEST

SAMSUNG 18–55MM F/3.5–5.6 OIS II

CONTINUED FROM PAGE 86

(almost) matched comparable APS-C ILC kit zooms from Sony and Samsung, but paled by comparison with the DSLR lenses. At 55mm, for example, the Samsung showed Slight (0.28%) pincushion distortion compared with the Imperceptible-range pincushioning of DSLR kit zooms.

The Samsung's top magnification of 1:3.6 similarly underwhelmed us when compared with glass for DSLRs, whose approximate average is 1:2.5. This dynamic reversed itself, however, with edge falloff: The Samsung (and similar ILC kit zooms) topped the DSLR zooms, with no detectible edge falloff.

The Samsung's killer feature? A barrel-mounted "iFunction" button. Pressing it and turning the focusing ring lets you adjust shutter speed, aperture, exposure compensation and other settings as you support the camera by the lens barrel—very cool. Ask for the iFunction feature by name, because some online ads for the new lens don't distinguish it from the earlier version, which may still be in the pipeline. —*Julia Silber*

SUBJECTIVE QUALITY FACTOR

Our standard lens test, SQF rates sharpness by print size

18 MM

Size	5x7	8x10	11x14	16x20	20x24
3.5	96.2	95.0	92.2	86.9	80.6
5.6	96.5	95.4	92.8	88.1	82.5
8.0	96.5	95.4	92.8	88.2	82.7
11.0	96.2	95.0	92.2	87.0	80.9
16.0	95.7	94.3	91.2	85.2	77.9
22.0	95.2	93.7	90.2	83.3	74.7

35 MM

Size	5x7	8x10	11x14	16x20	20x24
4.5	96.3	95.1	92.4	87.7	82.3
5.6	96.4	95.2	92.7	88.2	83.1
8.0	96.8	95.7	93.5	89.7	85.7
11.0	96.6	95.6	93.2	89.3	85.0
16.0	96.1	94.9	92.1	87.3	81.9
22.0	95.2	93.7	90.2	83.8	76.2

55 MM

Size	5x7	8x10	11x14	16x20	20x24
5.6	95.7	94.3	91.3	86.1	80.2
6.3	95.7	94.4	91.3	86.1	80.3
8.0	96.1	94.8	92.1	87.6	82.6
11.0	96.2	95.0	92.3	88.1	83.5
16.0	95.7	94.4	91.4	86.3	80.7
22.0	95.0	93.5	89.9	83.7	76.6

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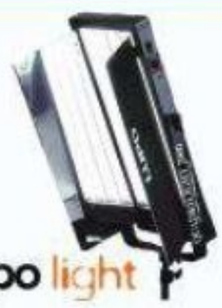

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LAB * LENS TEST

ZEISS DISTAGON T* 15MM F/2.8 ZE

CONTINUED FROM PAGE 92

f/4 and f/22. The manual focus ring, like the rest of the chassis, is all-metal—no rubberized grip here. Its turn is luxuriously smooth and absolutely silent, and thus seems well suited to video. (Search for this lens on PopPhoto.com to see a cool video shot with it by our own Philip Ryan.)

At 1.84 pounds and well over 4.6 inches long with a 4-inch diameter, the Zeiss is noticeably bulkier than comparable lenses recently tested here, despite its lack of an autofocus motor. (Rival lenses include the 3.5-inch Nikon 14mm f/2.8 AF, which streets for $1,699, and the 3.7-inch Canon 14mm f/2.8L II USM AF, at $2,359.)

On our optical bench, the Zeiss produced strong SQF numbers that almost matched those of Canon's 14mm and slightly beat the Nikon's. A similar dynamic applied to distortion control: At 0.32%, its Visible-range barreling was not up to the Canon's 0.27% barrel distortion but slightly better than the Nikon's 0.35%.

If you can deal with its bulk and price, the Zeiss 15mm is a pleasure to use. (Autofocus? That can be overrated.) Coupling its wide view with high speed and a close, 10.12-inch focusing distance and 1:6.8 subject magnification, Zeiss once again delivers a lens that can make images (and videos) like no other. —*Julia Silber*

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Our standard lens test, SQF rates sharpness by print size

15 MM

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5.6	97.2	96.3	94.2	90.5	86.1
8.0	97.0	96.0	93.9	89.9	85.1
11.0	96.7	95.6	93.2	88.7	83.3
16.0	96.0	94.7	91.8	86.2	79.4
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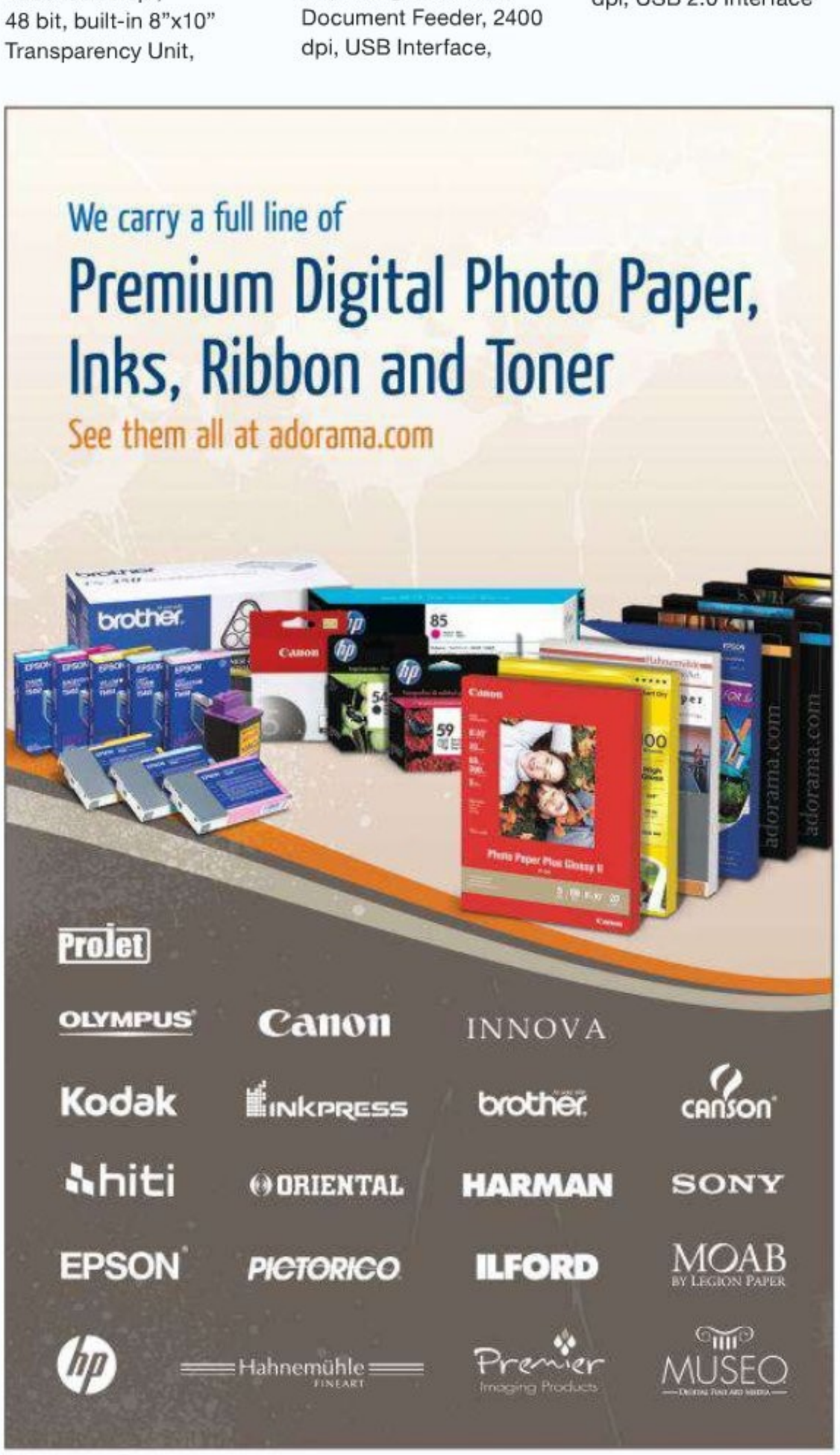

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- Available in eight standard sizes plus two Octaboxes

You might think you'd pay extra for that ingenious design. You'd be wrong. Made of rugged, pro-quality materials, our PZ line sells for between one-third and one-half the price of comparably-sized, name-brand softboxes. Let there be light—soft, flattering light!

FLASHPOINT Easy-Shoot Solutions

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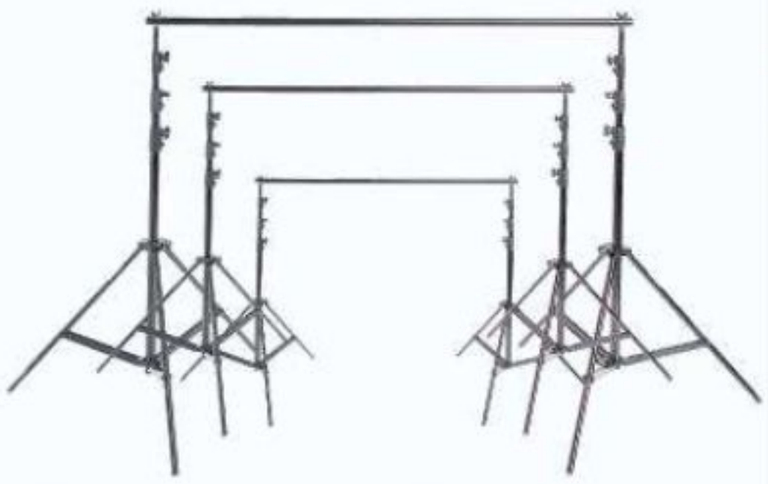

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Right, a Flashpoint II 620M Monolight with DC battery pack; left, the unit's control panel

LIGHT BRIGADE

Adorama's Flashpoint lighting line now offers a source for every photographic purpose

PDN GEAR OF THE YEAR

Adorama recently won the *Photo District News* 2011 "Lighting Gear of the Year" award for its Flashpoint II 620M Portrait Wedding Monolight Kit.

Flashpoint II 320M Monolight

Flashpoint Bright Beam 1000

Flashpoint Cool Light 4

Flashpoint 312 LED Light

Hot, cold, flash, fluorescent, and now LED—photographic light sources are as varied as they are confusing. If you're in the market but not sure what to get, Adorama offers an unexpected resource. You'll find primers on studio and location lighting at Adorama.com/learn, and Adorama's own Flashpoint line features every kind of light source in the business at prices far lower than competing brands.

STROBE Flashpoint II Monolights Adorama's house-brand strobes feature all-in-one design—flash head, power source, and controls are incorporated into a single, metal-sheathed unit. You can plug them into a wall socket for studio work or run them off the Flashpoint DC battery pack in locations without electricity. The **Flashpoint II 320M Monolight** costs just $99.95.

Adorama offers a complete range of **light-modifying attachments** for all its Flashpoint units. These include umbrellas, beauty dishes, and **Flashpoint PZ softboxes**, which come in square, rectangular, and octagonal shapes and set up in seconds thanks to an **exclusive zippered design**.

TUNGSTEN Flashpoint Bright Beam The adjustable **Flashpoint Bright Beam 1000 Tungsten Quartz Hot Light** ($99.85) can be used by itself in the studio, modified with Flashpoint umbrellas, softboxes, and other attachments. Or it can serve as a color-matched complement to existing interior light.

FLUORESCENT Flashpoint Cool Lights Adorama's daylight balanced fluorescent sources are flicker-free, generate virtually no heat, and yield four times more light per watt than tungsten. The **Flashpoint Cool Light 4** ($73.95) houses four 55-watt lamps that produce the equivalent of nearly 900 watts of tungsten, plenty for creative control of depth of field and shutter speed.

LED Flashpoint LED Using the most efficient technology of all, the **Flashpoint 312 LED Light** ($139.95) runs for hours on two batteries, yet is the equivalent of carrying around a 100-watt bulb. It's dimmable—and twin tungsten/daylight LED arrays mean you can dial in any color temperature to match the ambient light!

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Flashpoint lighting products are available exclusively from Adorama. Orders can be placed online at *Adorama.com*, by calling (800) 223-2500, or by visiting the Adorama superstore at 42 West 18th Street in New York City's Chelsea district.

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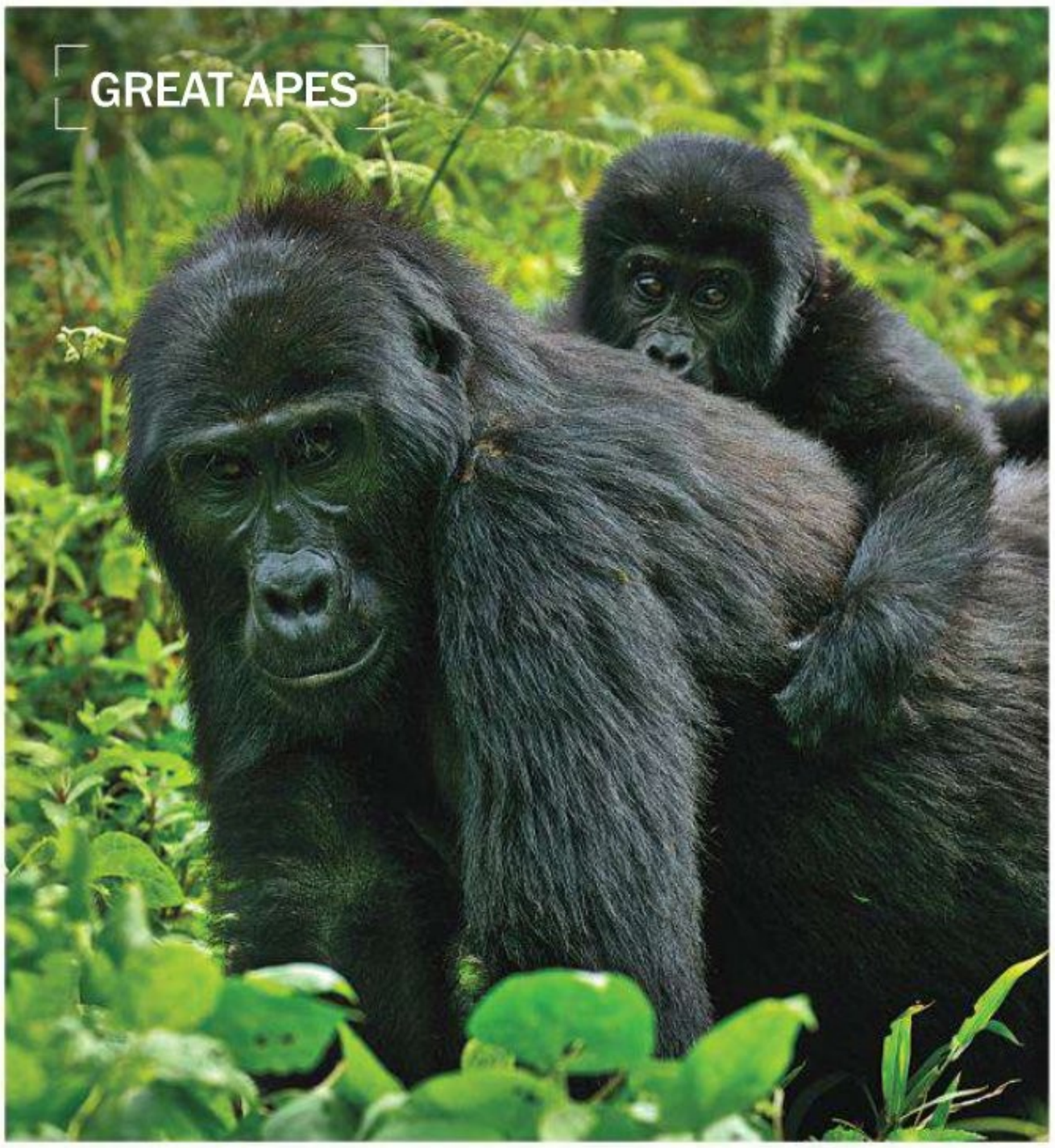

Where to Go

● **RWANDA** Excellent gorilla viewing awaits in Parc National des Volcans. Despite steep terrain, they're often easier to find and require less hiking to reach than in Uganda. October and November are popular since the gorillas stay at lower elevations. Avoid mid-April, when rain can be torrential. For chimpanzee trekking, base yourself at Nyungwe Forest Lodge. Gorilla permits cost $750 (as of June 1, 2012); chimpanzee permits, $70.

● **UGANDA** The most popular place for gorilla trekking is in the Bwindi Impenetrable Forest. Abercrombie & Kent and Sanctuary Retreats base guests at the upscale Sanctuary Gorilla Forest Camp. Gorilla permits cost $500.

● **DEMOCRATIC REPUBLIC OF CONGO** Despite the deadly conflict still smoldering in the eastern DRC, Kensington Tours and Hakuna Matata Tours offer mountain gorilla trekking in Virunga National Park and lowland gorilla trekking in Kahuzi-Beiga National Park. Permits: $400.

MOTHER GORILLA AND BABY, UGANDA
Families make great subjects, since the infants are cute and animated, and you can capture gorillas interacting. Shot with a 70–200mm f/2.8G VR; 1/320 sec at f/4.5, ISO 320.

GORILLA, UGANDA
In Uganda, gorillas sometimes cross tea plantations, making it easier to get environmentals. 400mm f/2.8G; 1/3200 sec at f/4.5, ISO 320.

CONTINUED FROM PAGE 57

tions for photographing gorillas and chimps are actually overcast skies and mist. The soft, diffused light brings out the rich, blue black of their fur. Experiment with cool white balance (below 5000° K) for richer greens and blues.

Sunny days offer a challenge. The bright, dappled light penetrates the canopy in blazing spots. In direct sun, gorillas' fur turns a shiny metallic and their orange eyes sink in deep shadow. Don't despair. Shuffle around and see if you can get all of the animal in similar light: shade or sunlight. Shooting tighter—just the face or eyes—may cut out mixed lighting.

If all else fails, crank up your white balance to 6000–8000° K and push the exposure up half a stop or more. Sure, you'll blow out the highlights and give the image a yellow-green tint. But you'll also wind up with a classic "safari" look.

They don't carry cameras, but your guides are the best gorilla photographers in the world. They've spent more time with professional photographers than a *National Geographic* editor has. They'll machete off infringing vines before you can ask, prod you to the best viewing spot, and even offer advice on whether this is a telephoto or wide-angle scene.

Most important, they know gorilla behavior. They'll offer such nuggets as "the babies like to wrestle when they wake up," or "if you want a shot of chest-pounding, forget about the old silverback and watch the adolescent males."

Gorillas, like us, are creatures of habit. If you miss something, such as the dramatic flash of their sharp teeth as they strip a branch, get ready—they'll do it again.

Once in a Lifetime?

You took two weeks off work and spent thousands of dollars just to get here. You paid $500 for a gorilla trekking permit in Rwanda or Uganda, or $400 in the Democratic Republic of Congo (DRC). So pony up for a second day, even a third or fourth. By booking several days spread across a week or more, you

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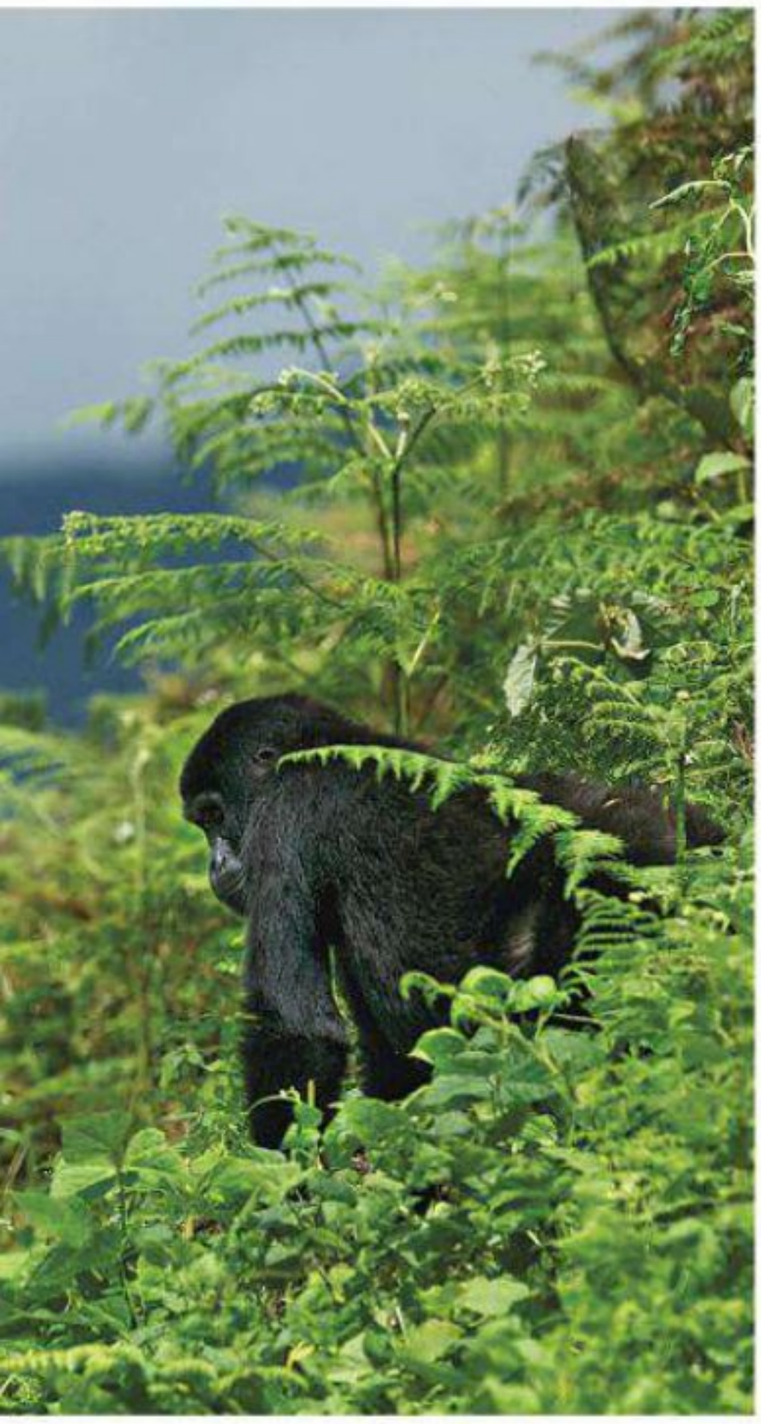

stack the odds of having favorable weather and wildlife conditions on at least one trek. You might get a rainy and overcast day and a sunny day, for two completely different feels.

If possible, visit different parks. The steep volcanic mountains of Rwanda and the DRC offer slightly more open terrain for photography, while the thick forests of Uganda create a more intimate feel.

My first day photographing gorillas was a wash. When our hour wrapped up, the only photo I had was a close-up of a silverback's eyes. The rest of the family stayed hidden and eventually moved off. But as we slipped on our packs for the four-hour hike back to the road, I couldn't help but smile. I had another once-in-a-lifetime experience waiting for me tomorrow. And the day after that. And the day after that.

A photographer with the National Geographic Image Collection, Jad Davenport (jaddavenport.com) is a four-time Lowell Thomas Award winner for travel writing and photography. To see his video footage from this trip, go to PopPhoto.com/apes.

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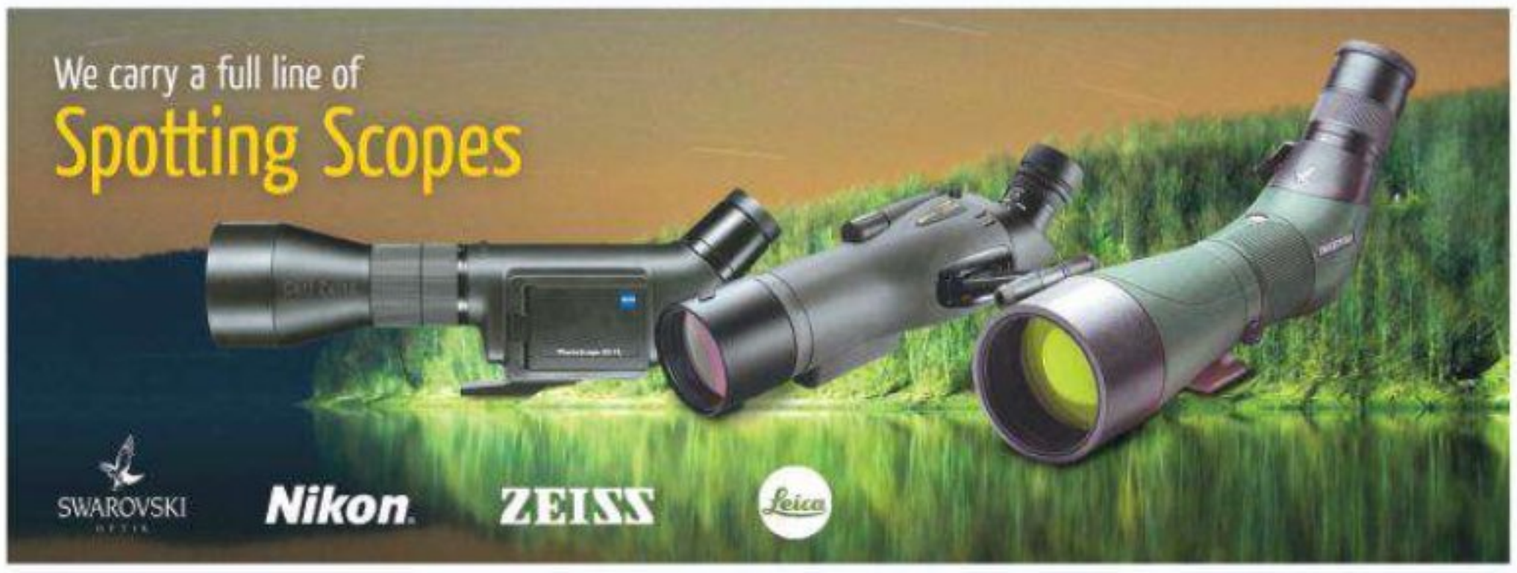

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ding venue are a critical part of telling the wedding's story. Personally, my favorite environmental images have people in them, but we get the undisturbed venue before guests arrive, too."

Technique is crucial, Lippke adds. "There's an art to bringing out the character and detail of the whole scene in a beautiful way. For me it's about finding the best camera angle to produce a beautiful composition, and then deciding on the best exposure. I think about whether I want to utilize a slow shutter speed to create some movement blur that would show a human presence without that particular person being distracting, or if I want the entire scene in sharp focus."

Have an Assistant

Being able to focus on both the big picture and the intimate moments that constantly, yet unpredictably, arise during a typical wedding means that this kind of photography is really a two-person job. Having an assistant isn't a luxury. For dozens of reasons, it's a necessity. Almost all the pros shown here work with "a sideman"—their coverage is strictly a tag-team effort.

"Immediately before the ceremony I meet with my associate photographer, and we make our game plan of how we are going to capture the different aspects of the ceremony and how the layout of the scene would be best photographed," explains Lippke.

"Usually one of us stays up front to document what is happening at the altar, while the other works on capturing the big picture view. For the reception and cocktails we take turns covering what is happening while the other photographer spends some time exploring details and the environment."

Develop Yourself

Craig Fritz, who with his wife Kitty makes up Twin Lens Images in

MAX WANGER

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LET LIGHT CREATE MOOD Max Wanger (maxwanger.com), based in Echo Park, CA, says the wonderful thing about living and working in Southern California is its beautiful sunlight. He made full use of it for this backlit and over-exposed moment. Note also how the low vantage point erases the background.

rural New Mexico (twinlensimages.com), stresses the importance of developing your own, unique pictorial style.

"Lately, we have been making a concerted effort to stay off of wedding blogs and look at fewer wedding magazines," he says. "Not because we don't enjoy looking at the great work out there, but because we recognize that when you inundate yourself with that type of imagery, you can begin to see other photographers' themes, techniques, and photos in the scene you're attempting to photograph. We very much want to do our own thing, see our own way, and so this is one way we're attempting to keep ourselves visually fresh."

MORE IMAGES from *American Photo*'s top 10 wedding shooters are in its May/June issue, available on newsstands, at the iTunes store (for the iPad) or online at www.americanphotomag.com.

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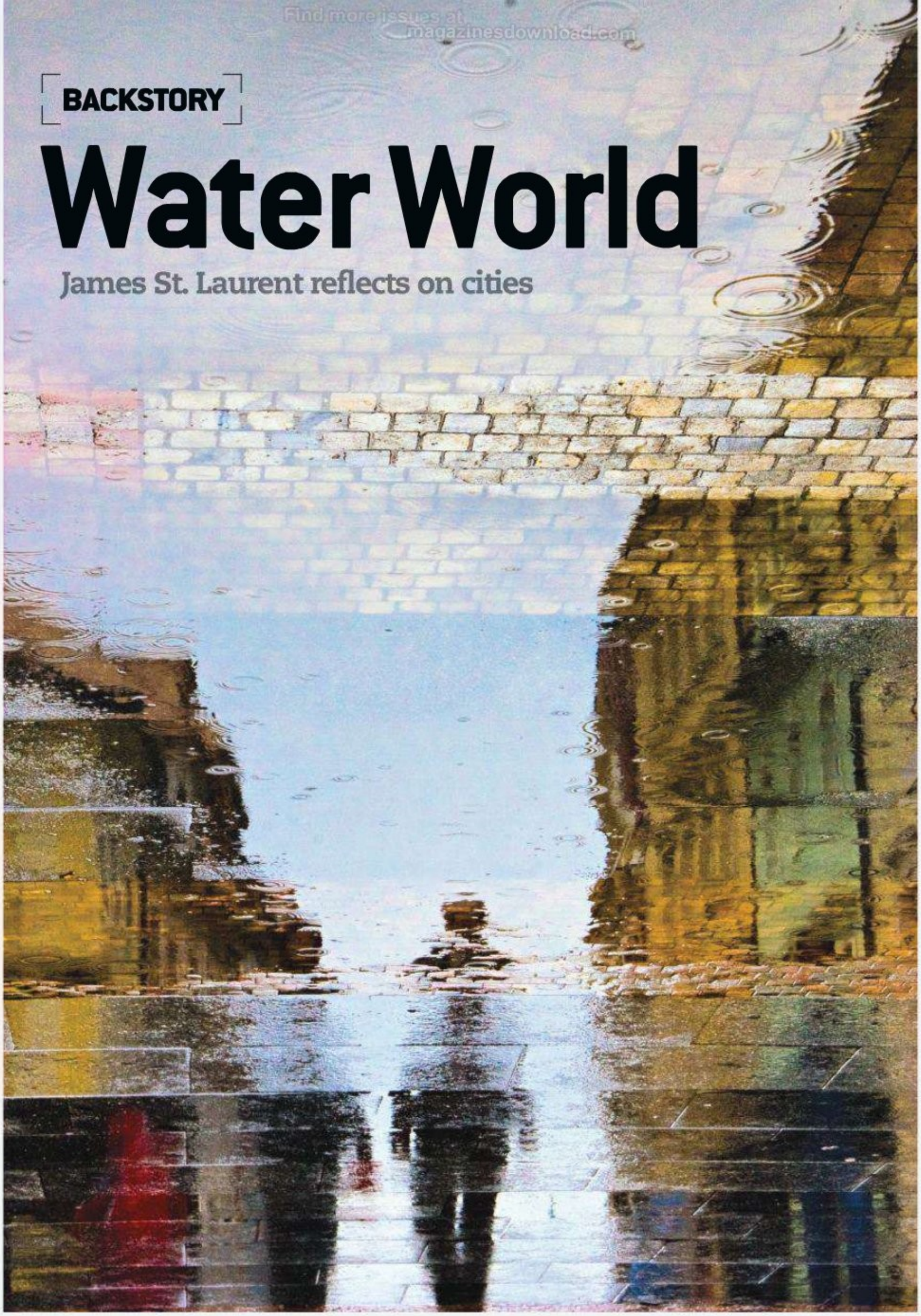
BACKSTORY

Water World

James St. Laurent reflects on cities



JAMES ST. LAURENT/IN TRANSIT IMAGES INC.

I FIRST started capturing cities in reflections in 1996, on my first visit to Prague. My Czech relatives left the city after WWII, so I'd been hearing about it all my life—when it rained, I wasn't going to let the weather stop me. An image I found in a puddle of water has since led to a series in water and windows in cities around the world, at home in Montréal, in Zurich, in Miami. It's why now, when it rains, I never stay indoors.

Water tends to pool on Prague's cobblestone streets; the reflections and stones blend into patterns and shapes. This image was taken in 2004, on an alley off Wenceslas Square, near the market. I loved the way the water reflected the architecture on both sides—I set up a tripod with my cable release and waited for pedestrians to pass. ***—As told to Lori Fredrickson***

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